Table 1

<table>
<tr><th>Article</th><th>Table type</th><th>Table Image</th><th>paragraphs just before the table (with title, if any)</th><th>Table_Caption</th><th>Keywords_Phrases</th><th>Table_Footnote_KEY_Abbreviations</th><th>Measurements</th><th>Measurement Unit</th><th>Method</th><th>Plant Material</th><th>Targets</th><th>Non-Plant Control Substances, Solvents, Media, Substrate</th><th>Notes</th><th>Table Type</th><th>Col1</th><th>Col2</th><th>Col3</th><th>Col4</th><th>Col5</th><th>Col6</th></tr>
<tr><td>PMC5080681</td><td>Antimicrobial</td><td>Table 4
Antimicrobial activities of T. bovei essential oil<table><tr><th>Microorganism</th><th>MIC value (mg/ml) for T. bovei essential oil</th></tr><tr><td>Escherichia coli (ATCC 25922)</td><td>0.5</td></tr><tr><td>Pseudomonas aeruginosa (ATCC 27853)</td><td>0.25</td></tr><tr><td>Staphylococcus aureus (ATCC 25923)</td><td>0.25</td></tr><tr><td>Staphylococcus aureus (MRSA Positive)</td><td>0.5</td></tr><tr><td>Candida albicans (Clinical isolate)</td><td>0.25</td></tr></table></td><td>Antibacterial and antifungal activities
The essential oil of T. bovei extracted by microwave-ultrasonic method used in this study exhibited potential bioactivity against the growth of all microbes examined in this study. With all of the studied pathogens, the highest antimicrobial activity (lowest MIC) against microbes examined was seen against Pseudomonas aeruginosa, Staphylococcus aureus and Candida albicans with MIC value of 0.25 mg/ml, while for Escherichia coli and MRSA was 0.5 mg/ml as shown in Table 4.</td><td>Antimicrobial activities of T. bovei essential oil</td><td>[ACTIVITY(S)] activities of [PLANT(S)] [EXTRACT(S)]</td><td></td><td>MIC value</td><td>(mg/ml)</td><td></td><td></td><td></td><td></td><td></td><td></td><td>Microorganism</td><td>MIC value (mg/ml) for T. bovei essential oil</td><td></td><td></td><td></td><td></td></tr>
<tr><td>PMC5132230</td><td>antibacterial_MIC</td><td>Table 4
Minimum Inhibitory Concentration (MIC) and Minimum Bactericidal Concentration (MBC) of the essential oil Aeollanthus suaveolens.<table><tr><th>Microorganism</th><th>MIC (mg.mL⁻¹)</th><th>MBC (mg.mL⁻¹)</th></tr><tr><td>Escherichia coli</td><td>50</td><td>100</td></tr><tr><td>Staphylococcus aureus</td><td>100</td><td>ND</td></tr><tr><td>Salmonella sp</td><td>50</td><td>ND</td></tr><tr><td>Amoxilina (Controle positivo)</td><td>0,048</td><td>0,048</td></tr><tr><td>DMSO (Controle negativo)</td><td>-</td><td>-</td></tr></table>ND: Not Detected</td><td>Microbiological activity of the essential Aeollanthus suaveolens oil
The discovery of new natural products with antibiotic potential is of considerable interest due to the growing resistance of many bacteria to antibiotics currently used for the treatment of infections [33].
Table 4 refers to a microbial activity of essential oil from A. suaveolens. The results showed that gram-negative bacteria Escherichia coli and Salmonella were more susceptible to the essential oil from A. suaveolens, with MIC 50 mg.mL-1 when compared with the gram-positive bacteria Staphylococcus aureus MIC 100 mg.mL-1. With respect to MBC, the OE concentration equivalent to 100 A. suaveolens mg.mL-1 was sufficient to inhibit the growth of E. coli.</td><td>Minimum Inhibitory Concentration (MIC) and Minimum Bactericidal Concentration (MBC) of the essential oil Aeollanthus suaveolens.</td><td>[MEASUREMENT(S)] of the [EXTRACT(S)] [PLANT(S)].</td><td>ND: Not Detected</td><td>Minimum Inhibitory Concentration (MIC) and Minimum Bactericidal Concentration (MBC)</td><td>mg.mL-1</td><td></td><td></td><td></td><td></td><td></td><td></td><td>Microorganism</td><td>MIC (mg.mL-1)</td><td>MBC (mg.mL-1)</td><td></td><td></td><td></td></tr>
<tr><td>PMC5203915</td><td>antiMicrobialMIC</td><td>Table 2
Antibacterial and antifungal activity of essential oils from Rhaponticum carthamoides hairy roots (HR) and roots of soil-grown plants (SGR). The Minimum Inhibitory Concentration (MIC), the Minimum Bactericidal Concentration (MBC), and the Minimum Fungicidal Concentration (MFC) of essential oils were determined using the microdilution assay and are presented in μg/mL.<table><tr><th>Microorganism</th><th colspan="4">Essential oil</th><th colspan="2">Positive control</th></tr><tr><th></th><th colspan="2">HR</th><th colspan="2">SGR</th><th></th><th></th></tr><tr><th></th><th>MIC</th><th>MBC/MFC</th><th>MIC</th><th>MBC/MFC</th><th>MIC</th><th>MBC/MFC</th></tr><tr><td>Staphylococcus aureus (ATCC 25923)</td><td>250</td><td>>500</td><td>125</td><td>>500</td><td>7.82[a]</td><td>>500[a]</td></tr><tr><td>Enterococcus faecalis (ATCC 29212)</td><td>125</td><td>>500</td><td>125</td><td>>500</td><td>1.95[a]</td><td>>500[a]</td></tr><tr><td>Pseudomonas aeruginosa (ATCC 27853)</td><td>125</td><td>>500</td><td>125</td><td>>500</td><td><0.48[b]</td><td>>500[b]</td></tr><tr><td>Escherichia coli (ATCC 25922)</td><td>250</td><td>>500</td><td>250</td><td>>500</td><td>0.98[b]</td><td>>500[b]</td></tr><tr><td>Saccharomyces cerevisiae (ATCC 2601)</td><td>625</td><td>2500</td><td>1250</td><td>>2500</td><td><0.48[c]</td><td>>5000[c]</td></tr><tr><td>Candida albicans (ATCC 10231)</td><td>625</td><td>2500</td><td>625</td><td>>5000</td><td><0.48[c]</td><td>>5000[c]</td></tr></table>[a]Vancomycin; [b]norfloxacin; [c]amphotericin B.
Data represent the median values of at least three replicates.</td><td>3.2. The Higher Antibacterial Activity of R. carthamoides HR and SGR Essential Oils against Gram-Positive and Gram-Negative Bacteria Than against Yeasts
In this study, the Minimum Inhibitory Concentration (MIC), the Minimum Bactericidal Concentration (MBC), and the Minimum Fungicidal Concentration (MFC) of HR and SGR essential oils were investigated against the Gram-positive bacteria, Gram-negative bacteria, and yeasts. It was found that both essential oils showed similar properties. The essential oils showed stronger antibacterial (MIC = 125–250 μg/mL) than antifungal activity (MIC = 625–1250 μg/mL) (Table 2). The highest antibacterial activity with a MIC value of 125 μg/mL was observed against Enterococcus faecalis and Pseudomonas aeruginosa. No significant difference in susceptibility was found between Gram-positive bacteria and Gram-negative bacteria (Table 2). In order to address the bacteriostatic and bactericidal properties of the samples, the MBC values were also evaluated. The MBC values are no more than four times the MIC values observed (Table 2).</td><td>Antibacterial and antifungal activity of essential oils from Rhaponticum carthamoides hairy roots (HR) and roots of soil-grown plants (SGR). The Minimum Inhibitory Concentration (MIC), the Minimum Bactericidal Concentration (MBC), and the Minimum Fungicidal Concentration (MFC) of essential oils were determined using the microdilution assay and are presented in μg/mL.</td><td>[ACTIVITY(S)] activity of [EXTRACT(S)] from [PLANT(S)] [PLANT PART(S)] of [GROWTH MEDIUM?] plants.
The [MEASUREMENT(S)] of essential oils were determined using the [METHOD(S)] and are presented in [UNIT(S)].</td><td>aVancomycin; bnorfloxacin; camphotericin B.
Data represent the median values of at least three replicates.</td><td></td><td>μg/mL</td><td>microdilution assay</td><td></td><td></td><td></td><td></td><td></td><td>Microorganism</td><td>Essential oil</td><td>Positive control</td><td></td><td></td><td></td></tr>
<tr><td>PMC5324201</td><td>Antibacterial_ZOI</td><td>Table 13
Anti-bacterial activity (Zone of Inhibition) of Anethum sowa L. root essential oil by diffusion method<table><tr><th colspan="2">Test organisms</th><th colspan="5">Zone of Inhibition in mm</th></tr><tr><th></th><th></th><th>400 μg/well</th><th>600 μg/well</th><th>800 μg/well</th><th>CP</th><th>TE</th></tr><tr><td>Gram-positive bacteria</td><td>Bacillus subtilis</td><td>nz</td><td>4</td><td>7</td><td>27</td><td>24</td></tr><tr><td></td><td>Bacillus cereus</td><td>5</td><td>7</td><td>8</td><td>29</td><td>21</td></tr><tr><td></td><td>Staphylococcus aureus</td><td>nz</td><td>3</td><td>7</td><td>25</td><td>26</td></tr><tr><td></td><td>Enterococcus faecalis</td><td>nz</td><td>nz</td><td>nz</td><td>20</td><td>16</td></tr><tr><td>Gram -negative bacteria</td><td>Escherichia coli 12079</td><td>nz</td><td>4</td><td>7</td><td>25</td><td>9</td></tr><tr><td></td><td>Escherichia coli 2799</td><td>11</td><td>13</td><td>16</td><td>23</td><td>11</td></tr><tr><td></td><td>Pseudomonas aeruginosa</td><td>8</td><td>9</td><td>11</td><td>29</td><td>16</td></tr><tr><td></td><td>Salmonella enteritidis 1375</td><td>nz</td><td>nz</td><td>5</td><td>39</td><td>23</td></tr><tr><td></td><td>Salmonella typhi</td><td>nz</td><td>5</td><td>9</td><td>35</td><td>25</td></tr><tr><td></td><td>Acetobacter aceti</td><td>nz</td><td>nz</td><td>3</td><td>28</td><td>23</td></tr></table>CP Standard Ciprofloxacin (5 μg/disc), TE Standard Tetracycline (30 μg/disc)</td><td>Antimicrobial activity of Anethum sowa L. root essential oil
The results of antimicrobial activity of Anethum sowa L. essential oils are shown in Tables 13,
,14
14 and Figs. 5 & 6. The oil inhibited the growth of bacterial strains producing a zone diameter of inhibition from 3 to 16 mm, depending on the susceptibility of the tested bacteria and the different dosage level. The highest inhibition of zone was found against Escherichia coli 2799 followed by Pseudomonas aeruginosa and their effects are also higher than standard antibiotic tetracycline and lower than ciprofloxacin. On the other hand, Enterococcus faecalis showed the high resistant to the essential oil. However, other Gram-positive and Gram-negative bacteria exhibited moderate to weak activities than the standard antibiotics. The MICs of the essential oils were within concentration ranges from 62.5 to 250 μg/mL and the respective MBCs were from 125 to 500 μg/mL. The organism like E. coli 12079 and S. typhi were less susceptible to the oil with MICs value of 250 μg/mL respectively. The MIC and MBC values of standard ciprofloxacin were varied between 0.19–6.25 μg/mL and 3.125–100 μg/mL respectively.</td><td>Anti-bacterial activity (Zone of Inhibition) of Anethum sowa L. root essential oil by diffusion method</td><td>[ACTIVITY(S)] activity [MEASUREMENT(S)] of [PLANT(S)] [PART(S)] [EXTRACT(S)] by [METHOD] method</td><td>CP Standard Ciprofloxacin (5 μg/disc), TE Standard Tetracycline (30 μg/disc)</td><td>disk diffusion method</td><td>µg/well</td><td></td><td></td><td></td><td>CP Standard Ciprofloxacin (5 μg/disc)
TE Standard Tetracycline (30 μg/disc)</td><td></td><td></td><td>Test organisms</td><td>Zone of Inhibition in mm</td><td></td><td></td><td></td><td></td></tr>
<tr><td>PMC5324201</td><td>antibacterial_MIC_MBC</td><td>Table 14
Minimum inhibitory concentration (MIC) and Minimum bactericidal concentration (MBC) of Anethum sowa L. root essential oil and standard ciprofloxacin<table><tr><th colspan="2">Test organisms</th><th colspan="2">Essential Oil</th><th colspan="2">Std. CP</th></tr><tr><th></th><th></th><th>MIC (μg/mL)</th><th>MBC (μg/mL)</th><th>MIC (μg/mL)</th><th>MBC (μg/mL)</th></tr><tr><td>Gram-positive bacteria</td><td>Bacillus subtilis</td><td>125</td><td>250</td><td>1.55</td><td>12.5</td></tr><tr><td></td><td>Bacillus cereus</td><td>125</td><td>500</td><td>3.125</td><td>25</td></tr><tr><td></td><td>Staphylococcus aureus</td><td>125</td><td>250</td><td>6.25</td><td>50</td></tr><tr><td></td><td>Enterococcus faecalis</td><td>62.5</td><td>125</td><td>0.37</td><td>100</td></tr><tr><td>Gram -negative bacteria</td><td>Escherichia coli 12079</td><td>250</td><td>500</td><td>0.75</td><td>50</td></tr><tr><td></td><td>Escherichia coli 2799</td><td>62.5</td><td>125</td><td>0.37</td><td>6.25</td></tr><tr><td></td><td>Pseudomonas aeruginosa,</td><td>62.5</td><td>125</td><td>3.125</td><td>25</td></tr><tr><td></td><td>Salmonella enteritidis 1375</td><td>62.5</td><td>250</td><td>0.37</td><td>6.25</td></tr><tr><td></td><td>Salmonella typhi</td><td>250</td><td>500</td><td>0.19</td><td>3.125</td></tr><tr><td></td><td>Acetobacter aceti</td><td>62.5</td><td>500</td><td>0.37</td><td>50</td></tr></table>Std. CP Standard Ciprofloxacin</td><td></td><td>Minimum inhibitory concentration (MIC) and Minimum bactericidal concentration (MBC) of Anethum sowa L. root essential oil and standard ciprofloxacin</td><td>[MEASUREMENT(S)] of [PLANT(S)] [PART(S)] [EXTRACT(S)] and standard [CONTROL SUBSTANCE]</td><td>Std. CP Standard Ciprofloxacin</td><td>MIC
MBC</td><td>(µg/mL)</td><td></td><td></td><td></td><td>Std. CP Standard Ciprofloxacin</td><td></td><td></td><td>Test organisms</td><td>MIC (µg/mL)</td><td>MBC (µg/mL)</td><td></td><td></td><td></td></tr>
<tr><td>PMC5324201</td><td>AntiFungal_ZOI</td><td>Table 15
Anti-fungal activity of Anethum sowa L. root essential oil<table><tr><th>Fungi</th><th colspan="4">Zone of Inhibition in mm</th><th colspan="2">MIC/MBC (μg/mL)</th></tr><tr><th></th><th colspan="3">Essential oil</th><th>Fluconazole</th><th></th><th></th></tr><tr><th></th><th>400 μg/well</th><th>600 μg/well</th><th>800 μg/well</th><th>100 μg/well</th><th>Essential oil</th><th>Fluconazole</th></tr><tr><td>Candida albicans</td><td>-</td><td>3</td><td>7</td><td>23</td><td>125/500</td><td>62.5/250</td></tr><tr><td>Aspergillus niger</td><td>-</td><td>5</td><td>9</td><td>16</td><td>250/500</td><td>125/500</td></tr><tr><td>Sacharomyces cerevaceae</td><td>-</td><td>4</td><td>7</td><td>10</td><td>62.5/250</td><td>62.5/250</td></tr><tr><td>Trichoderma sp.</td><td>-</td><td>-</td><td>-</td><td>9</td><td>250/500</td><td>125/500</td></tr></table></td><td>Antifungal activity of Anethum sowa L. root essential oil
The antifungal activity of the essential oil shown in Table 15. The highest zone of inhibition was shown against A. niger at 800 µg/well but there was no observable zone of inhibition was found in T. sp. On the other hand, no zone was observed at 400 µg/well dose level. The standard drug fluconazole was highly sensitive to all the fungi at the dose of 100 µg/well. In the MICs and MBCs experiments, the essential oil showed the highest inhibition i.e. the lowest MICs and MBCs. In the case of fluconazole, it completely inhibited the entire test fungi.</td><td>Anti-fungal activity of Anethum sowa L. root essential oil</td><td>[ACTIVITY(S)] activity of [PLANT(S)] [PART(S)] [EXTRACT(S)]</td><td></td><td></td><td></td><td>Zone of Inhibition</td><td></td><td></td><td></td><td>Note that the results in the last two columns contain two measurements separated with a "/"
MIC/MBC (µg/mL)</td><td></td><td>Fungi</td><td>Zone of Inhibition in mm</td><td>MIC/MBC (µg/mL)</td><td></td><td></td><td></td></tr>
<tr><td>PMC5344628</td><td>Antibacterial_MIC</td><td>Table 4
Minimum inhibitory concentration (MIC) of essential oils tested against Fusarium graminearum G87, Penicillium corylophilum CBMF1, and Aspergillus brasiliensis ATCC 16404.<table><tr><th>Essential Oil Fungal Strain</th><th>Thyme (ppm)</th><th>Clove (ppm)</th><th>Rosemary (ppm)</th><th>Tea Tree (ppm)</th></tr><tr><td>Penicillium corylophilum CBMF1</td><td>174.41</td><td>465.11</td><td>NA</td><td>930.23</td></tr><tr><td>Fusarium graminearum G87</td><td>162.79</td><td>930.23</td><td>NA</td><td>1395.34</td></tr><tr><td>Aspergillus brasiliensis ATCC 16404</td><td>116.27</td><td>697.67</td><td>NA</td><td>813.95</td></tr></table>NA—not applicable.</td><td>2.3. Minimum Inhibitory Concentration
The minimum inhibitory concentrations of the tested essential oils (EOs of thyme, clove, rosemary, and tea tree oils) are presented in Table 4.
The data presented in Table 4 shows that, from all the essential oils tested in this study, rosemary oil did not show desirable results against the selected fungi.
The results evidenced that the most effective essential oil from the tested oils was thyme essential oil, which displayed strong antifungal activity with MIC values between 116.27 and 174.41 ppm. MIC values of clove, rosemary, and tea tree essential oils were found within the range of 465.11–1395.34 ppm.</td><td>Minimum inhibitory concentration (MIC) of essential oils tested against Fusarium graminearum G87, Penicillium corylophilum CBMF1, and Aspergillus brasiliensis ATCC 16404.</td><td>[MEASUREMENT(S)] of [EXTRACT(S)] tested against [TARGET(S)]</td><td>NA—not applicable.</td><td>Minimum inhibitory concentration (MIC)</td><td>(ppm)</td><td></td><td></td><td></td><td></td><td>The header on this table is incorrect. I believe "Essential Oil" should be above the columns for each EO result.</td><td></td><td>Fungal Strain</td><td>Essential Oil</td><td></td><td></td><td></td><td></td></tr>
<tr><td>PMC5344628</td><td>antiBacterial_DD</td><td>Table 5
Mean inhibition zone diameter (mm) by the vapor disc diffusion method.<table><tr><th>Essential Oil</th><th colspan="3">Vapor Phase Method</th></tr><tr><th></th><th>S. aureus</th><th>E. coli</th><th>L. monocytogenes</th></tr><tr><td>Thyme</td><td>56.8 ± 6.9</td><td>28.3 ± 1.3</td><td>48.5 ± 4.9</td></tr><tr><td>Clove</td><td>14.2 ± 2.6</td><td>0 ± 0</td><td>0 ± 0</td></tr><tr><td>Rosemary</td><td>0 ± 0</td><td>0 ± 0</td><td>NA</td></tr><tr><td>Tea tree</td><td>0 ± 0</td><td>0 ± 0</td><td>0 ± 0</td></tr></table></td><td>Thyme oil had the highest inhibition zones for the three test strains, followed by tea tree oil, and then by clove oil. Rosemary oil was the least active.
Thyme essential oil is strongly antimicrobial, antifungal, antiviral, antiparasitic, mainly due to the high content of thymol [49]. This is in accordance with other studies that reported that thyme essential oil is efficient against Gram-positive and Gram-negative bacteria [29,30] and fungi [28,51,52].
Due to its antimicrobial, antifungal, antivermin, and antiviral activity [34,35], clove essential oil is used as a preservative but also exhibits other effects with positive impacts on consumer health, including antiseptic, antihelmintic, anti-inflammatory, antispasmodic, carminative, anti-neuralgic, antiulcer, anti-cancer, anticancerinogenic, and anticoagulant activities. Moreover, it acts as a local analgesic [36].
The inhibition zones observed after 24 h were stable and identical after 48 and 72 h of incubation. EOs are less effective in the vapor disc diffusion method</td><td>Mean inhibition zone diameter (mm) by the vapor disc diffusion method</td><td>[MEASUREMENT(S)] [UNIT(S)] by [METHOD(S)] method</td><td></td><td>Mean Inhibition zone diameter</td><td>(mm)</td><td>Vapor disc diffusion method
Vapor Phase Method</td><td></td><td></td><td></td><td>Find international spellings. Eg: Vapor/vapour</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>PMC5344628</td><td>antiBacterial_MIC</td><td>Table 6
The minimal inhibitory concentration (MIC) (%) of essential oils in three different solvents (v/v).<table><tr><th>EO</th><th>Method</th><th colspan="3">MIC Value for S. aureus</th><th colspan="3">MIC Value for E. coli</th></tr><tr><th></th><th></th><th colspan="3">Concentration of Oil (v/v)</th><th colspan="3">Concentration of Oil (v/v)</th></tr><tr><th></th><th></th><th>0.5%</th><th>5%</th><th>100%</th><th>0.5%</th><th>5%</th><th>100%</th></tr><tr><th></th><th></th><th>Tween-20</th><th>DMSO</th><th>Ethanol</th><th>Tween-20</th><th>DMSO</th><th>Ethanol</th></tr><tr><td>Thyme</td><td>Agar</td><td>1.56</td><td>12.50</td><td>1.56</td><td>3.13</td><td>6.25</td><td>1.56</td></tr><tr><td></td><td>Broth</td><td>0.39</td><td>0.78</td><td>3.13</td><td>3.13</td><td>3.13</td><td>1.13</td></tr><tr><td>Clove</td><td>Agar</td><td>3.13</td><td>12.50</td><td>12.50</td><td>12.50</td><td>12.50</td><td>3.13</td></tr><tr><td></td><td>Broth</td><td>6.25</td><td>3.13</td><td>3.13</td><td>3.13</td><td>6.25</td><td>6.25</td></tr><tr><td>Tea Tree</td><td>Agar</td><td>6.25</td><td>25.00</td><td>25.00</td><td>12.50</td><td>12.50</td><td>12.50</td></tr><tr><td></td><td>Broth</td><td>0.80</td><td>25.00</td><td>25.00</td><td>12.50</td><td>25.00</td><td>25.00</td></tr></table></td><td>The minimal inhibitory concentration of an antimicrobial agent is the lowest (i.e., minimal) concentration of the antimicrobial agent that inhibits a given bacterial isolate from multiplying and producing visible growth in the test system. This concentration was determined by incubating a known quantity of bacteria with specified dilutions of the antimicrobial agent. Using a similar broth dilution method, Zhang et al. [53] found that MIC was 1.0 mg/mL of cinnamon for both S. aureus and E. coli. Broth microdilution is the most widely used method in clinical laboratories, but agar diffusion is also used. Due to the oily content of EOs, using solvents is needed to obtain homogeneous dilutions. The results obtained using three solvents namely Tween-20, DMSO, and ethanol by the two test methods (agar MIC testing and the broth microdilution test) are shown in Table 6. There are some differences between the test results, but they all showed that thyme is the most effective EO, with a very low concentration needed to inhibit the growth of S. aureus and E. coli, followed by clove and tea tree oils. The thyme oil MIC values with the broth dilution method was approximately 0.39%–3.13% for S. aureus and 1.56%–3.13% for E. coli. Similarly, clove MIC value range were approximately 3.13%–6.26% for S. aureus and 6.25% for E. coli. A strong antimicrobial activity of thyme was also found by Mith et al. [54] when they tested different EOs and determined MIC against both food-borne pathogens and spoilage bacteria with a broth dilution</td><td>The minimal inhibitory concentration (MIC) (%) of essential oils in three different solvents (v/v).</td><td>[MEASUREMENT(S)] [UNIT(S)] of [EXTRACT(S)] in three different [SOLVENT(S)] [SOLVENT UNIT]</td><td>tea tree essential oil (TTO)</td><td>The minimal inhibitory concentration (MIC) (%) of essential oils in three different solvents (v/v).</td><td>(MIC) (%) solvents (v/v)</td><td></td><td></td><td></td><td>different solvents (v/v)
Tween-20
DMSO
Ethanol
Agar
Broth</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>PMC5364420</td><td>Antibacterial/MIC_MBC_ZOI</td><td>Table 3
ZOI, MIC, and MBC of essential oil from C. rotundus rhizomes.<table><tr><th>Bacterial strains</th><th>ZOI (mm)[a]</th><th>MIC (mg/mL)</th><th>MBC (mg/mL)</th></tr><tr><td>Gram positive</td><td></td><td></td><td></td></tr><tr><td>S. aureus</td><td>22.5 ± 1.9 a</td><td>10</td><td>20</td></tr><tr><td>S. epidermidis</td><td>21.5 ± 1.2 a</td><td>20</td><td>40</td></tr><tr><td>B. subtilis</td><td>24.4 ± 1.2 a</td><td>10</td><td>20</td></tr><tr><td>Gram negative</td><td></td><td></td><td></td></tr><tr><td>S. typhimurium</td><td>16.3 ± 1.1 b</td><td>40</td><td>40</td></tr><tr><td>E. coli</td><td>10.5 ± 0.8 c</td><td>>40</td><td>NT[b]</td></tr><tr><td>S. sonnei</td><td>15.4 ± 1.3 b</td><td>40</td><td>40</td></tr></table>[a]Values represent means of three independent replicates ± SD.
[b]NT, not tested. Different letters within a column indicate statistically significant differences between the means (p < 0.05) for ZOI.</td><td>ZOI, MIC and MBC of the essential oil
The ZOI, MIC, and MBC values of the essential oil from C. rotundus rhizomes are presented in Table 3. The results showed that the essential oil had a satisfactory antibacterial activity on all of the tested Gram-positive and Gram-negative bacteria. The ZOI values of the essential oil were in the range of 10.5–24.4mm for all tested bacterial strains, respectively. The MIC and MBC values for tested bacterial strains were in the range of 10–40mg/mL and 20–40mg/mL, respectively. Unfortunately, the MIC and MBC values of the essential oil for E. coli have not been gained when the concentration of essential oil reached the maximum in method system tested. Of these bacteria, the essential oil performed both a minimum MIC of 10mg/mL and a minimum MBC of 20mg/mL against S. aureus and B. subtilis, which indicated it was the most effective bacterial inhibitor and bactericide against B. subtilis. On the whole, the Gram positive bacteria were more sensitive than the Gram-negative ones to the essential oil from C. rotundus rhizomes (p<0.05). To some extent, these results were consistent with previous studies on antibacterial activity of C. rotundus essential oils17,33, which was likely due to the significant differences in the outer layers of Gram-negative and Gram-positive bacteria. Resistance of Gram-negative bacteria against essential oils is attributed the presence of a hydrophilic outer membrane which possess hydrophilic polysaccharide chain as a barrier hydrophobic essential oil34,35,36.</td><td>ZOI, MIC, and MBC of essential oil from C. rotundus rhizomes.</td><td>[MEASUREMENT(S)] of [EXTRACT(S)] from [PLANT(S)] [PARTS(S)].</td><td>aValues represent means of three independent replicates±SD.
bNT, not tested. Different letters within a column indicate statistically significant differences between the means (p<0.05) for ZOI.</td><td>ZOI
MIC
MBC</td><td>ZOI (mm)
MIC (mg/mL)
MBC (mg/mL)</td><td></td><td>rhizomes</td><td>Bacteria</td><td></td><td></td><td></td><td>Bacterial strains</td><td>ZOI (mm)a</td><td>MIC (mg/mL)</td><td>MBC (mg/mL)</td><td></td><td></td></tr>
<tr><td>PMC5412227</td><td>Antibacterial_MIC_MBC_DD</td><td>Table 3
Antimicrobial activity of D. kotschy essential oils.<table><tr><th>Microorganisms</th><th colspan="3">Essential oil</th><th colspan="3">Gentamycin</th><th colspan="3">Vancomycin</th></tr><tr><th></th><th>DD</th><th>MIC</th><th>MBC</th><th>DD</th><th>MIC</th><th>MBC</th><th>DD</th><th>MIC</th><th>MBC</th></tr><tr><td>S. aureus ATCC 12600</td><td>21</td><td>160</td><td>1280</td><td></td><td></td><td></td><td>30</td><td>16</td><td>128</td></tr><tr><td>S. epidermidis PTCC 1435</td><td>26</td><td>80</td><td>320</td><td></td><td></td><td></td><td>30</td><td>16</td><td>2</td></tr><tr><td>S. saprophyticus PTCC 1768</td><td>30</td><td>80</td><td>1280</td><td></td><td></td><td></td><td>35</td><td>2</td><td>64</td></tr><tr><td>Lc mesenteroides PTCC 1483</td><td>21</td><td>80</td><td>80</td><td></td><td></td><td></td><td>29</td><td>4</td><td>128</td></tr><tr><td>E. faecalis ATCC 29219</td><td>16</td><td>640</td><td>640</td><td></td><td></td><td></td><td>23</td><td>32</td><td>32</td></tr><tr><td>L. monocytogenes PTCC 1302</td><td>23</td><td>640</td><td>640</td><td></td><td></td><td></td><td>30</td><td>160</td><td>640</td></tr><tr><td>E. coli ATCC 11775</td><td>15</td><td>640</td><td>1280</td><td>25</td><td>8</td><td>64</td><td></td><td></td><td></td></tr><tr><td>S. typhi PTCC 1609</td><td>31</td><td>80</td><td>320</td><td>16</td><td>5</td><td>5</td><td></td><td></td><td></td></tr><tr><td>S. paratyphi A PTCC 1230</td><td>30</td><td>160</td><td>1280</td><td>32</td><td>1</td><td>16</td><td></td><td></td><td></td></tr><tr><td>S. enterica PTCC 1709</td><td>22</td><td>160</td><td>320</td><td>30</td><td>2</td><td>2</td><td></td><td></td><td></td></tr><tr><td>P. aeruginosa ATCC 27853</td><td>10</td><td>320</td><td>1280</td><td>31</td><td>5</td><td>5</td><td></td><td></td><td></td></tr><tr><td>K. pneumoniae ATCC 700603</td><td>18</td><td>320</td><td>320</td><td>23</td><td>8</td><td>128</td><td></td><td></td><td></td></tr></table>DD: diameter of inhibition zone (mm) including disk diameter of 6 mm. MIC, MBC: values given as μg/ml (for the essential oils and antibiotics).</td><td>Antimicrobial activity
The antimicrobial behavior of D. kotschy essential oils against a panel of twelve bacteria strains was studied by agar disk diffusion and broth microdilution susceptibility assays. Bacteria selection was made based on their relevance as food contaminants. Their potency was qualitatively and quantitatively determined from the diameters of the inhibition zones (DDs), minimum inhibitory concentrations (MICs) and minimum bactericidal concentrations (MBCs), as shown in Table 3.</td><td>Antimicrobial activity of D. kotschy essential oils.</td><td>[ACTIVITY(S)] activity of [PLANT(S)] [EXTRACT(S)]</td><td>DD: diameter of inhibition zone (mm) including disk diameter of 6 mm.
MIC, MBC: values given as µg/ml (for the essential oils and antibiotics).</td><td>DD: diameter of inhibition zone (mm)
MIC, MBC</td><td>µg/ml</td><td></td><td></td><td></td><td>Gentamycin
Vancomycin</td><td></td><td></td><td>Microorganisms</td><td>DD</td><td>MIC</td><td>MBC</td><td></td><td></td></tr>
<tr><td>PMC5423258</td><td>antibacterial_MIC_MBC</td><td>Table 4
Antibacterial activities (MIC and MBC) of C. decurrens, C. sempervirens and T. articulata essential oils<table><tr><th>Microorganism</th><th colspan="6">Mean (μL/mL) ± Standard Deviation</th><th colspan="2">Gentamycin Mean (μg/mL) ± Standard Deviation</th></tr><tr><th></th><th colspan="2">C. decurrens</th><th colspan="2">C. sempervirens</th><th colspan="2">T. articulata</th><th></th><th></th></tr><tr><th></th><th>MIC90</th><th>MBC</th><th>MIC90</th><th>MBC</th><th>MIC90</th><th>MBC</th><th>MIC90</th><th>MBC</th></tr><tr><td>Gram-positive</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>Staphylococcus aureus</td><td><64</td><td>–</td><td>1.149 ± 0.007</td><td>3.031 ± 0.093</td><td>1.319 ± 0.074</td><td>3.031 ± 0.16</td><td>0.02 ± 0.004</td><td>1 ± 0.023</td></tr><tr><td>Staphylococcus epidermidis</td><td>0.442 ± 0.027</td><td>2.244 ± 0.092</td><td>0.047 ± 0.002</td><td>0.391 ± 0.073</td><td>0.023 ± 0.009</td><td>0.135 ± 0.062</td><td>0.02 ± 0.003</td><td>1 ± 0.046</td></tr><tr><td>Streptococcus pyogenes</td><td><64</td><td>–</td><td>0.84 ± 0.068</td><td>2.178 ± 0.13</td><td><64</td><td>–</td><td>0.02 ± 0.003</td><td>1 ± 0.028</td></tr><tr><td>Gram-negative</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>E. coli</td><td><64</td><td>–</td><td>0.037 ± 0.006</td><td>0.155 ± 0.032</td><td>0.059 ± 0.063</td><td>1.515 ± 0.032</td><td>0.04 ± 0.002</td><td>2 ± 0.027</td></tr><tr><td>Klebsiella pneumonia</td><td>0.306 ± 0.031</td><td>2.0231 ± 0.11</td><td>1.319 ± 0.056</td><td>1.66 ± 0.080</td><td>2.828 ± 0.076</td><td>4.49 ± 0.24</td><td>0.02 ± 0.003</td><td>1 ± 0.027</td></tr><tr><td>Proteus vulgaris</td><td>1.414 ± 0.072</td><td>5.66 ± 0.094</td><td>1.414 ± 0.051</td><td>2.828 ± 0.160</td><td>3.031 ± 0.058</td><td>4.59 ± 0.234</td><td>0.02 ± 0.003</td><td>1 ± 0.050</td></tr><tr><td>Pseudomonas aeruginosa</td><td>1.515 ± 0.042</td><td>2.297 ± 0.056</td><td>0.42 ± 0.035</td><td>1.98 ± 0.062</td><td>2.378 ± 0.052</td><td>4.72 ± 0.27</td><td>0.037 ± 0.004</td><td>2 ± 0.032</td></tr><tr><td>Shigella boydii</td><td>0.435 ± 0.054</td><td>1.148 ± 0.072</td><td>0.84 ± 0.035</td><td>2.378 ± 0.120</td><td>0.737 ± 0.036</td><td>1.06 ± 0.064</td><td>0.02 ± 0.001</td><td>1 ± 0.024</td></tr></table>-Not done</td><td>The antibacterial activities of C. decurrens, C. sempervirens and T. articulata essential oils against the tested Gram-positive and Gram- negative bacteria are shown in Table 4. The essential oils under investigation inhibited the growth of S. epidermidis at concentrations 0.023- 0.442 µL/mL. Essential oil of C. sempervirens showed inhibition of the growth of S. pyogenes at concentration 0.84 µL/mL, while essential oils of C. decurrens and T. articulata at concentrations up to 64 µL/mL showed no inhibition of the growth of S. pyogenes. E. coli showed no susceptibility to essential oil of C. decurrens, while all the tested Gram-negative microorganisms showed growth inhibition by the effect of essential oils of C. sempervirens and T. articulata at concentrations range 0.037- 3.031 µL/mL. In addition, all the tested essential oils excreted bactericidal activities against all the susceptible Gram-positive and gram-negative microorganisms at concentration range 0.155- 6.72 µL/mL. C. sempervirens showed the highest antibacterial activities against most of the tested bacterial strains.</td><td>Antibacterial activities (MIC and MBC) of C. decurrens, C. sempervirens and T. articulata essential oils</td><td>[ACTIVITY(S)] of [PLANT(S)] [EXTRACT(S)]</td><td>-Not done</td><td>MIC
MBC
Mean (µL/mL) ± Standard Deviation</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>Microorganism</td><td>MIC90</td><td>MBC</td><td></td><td></td><td></td></tr>
</table>

Article	Table type	Table Image	paragraphs just before the table (with title, if any)	Table_Caption	Keywords_Phrases	Table_Footnote_KEY_Abbreviations	Measurements	Measurement Unit	Method	Plant Material	Targets	Non-Plant Control Substances, Solvents, Media, Substrate	Notes	Table Type	Col1	Col2	Col3	Col4	Col5	Col6
PMC5423258		(Table 5, below)	The antifungal activities of the essential oils of C. decurrens, C. sempervirens and T. articulata against tested yeast strains are shown in Table 5. Essential oil of C. decurrens showed no activities against all the tested yeast strains except C. parapsilosis which showed growth inhibition at concentration 0.824 µL/mL. C. glabrata and C. krusei showed no susceptibility to any of the studied essential oils, while essential oils of C. sempervirens and T. articulata inhibited the growth of C. albicans and C. parapsilosis at concentration range 0.42- 0.757 µL/mL. The tested essential oils showed MFC against the susceptible Candida species ranging from 1.148 µL/mL to 2.828 µL/mL. C. sempervirens essential oil showed the highest fungicidal activities followed by T. articulata and C. decurrens.	Antifungal activities (MIC and MFC) of C. decurrens, C. sempervirens and T. articulata essential oils	[ACTIVITY(S)] of [PLANT(S)] [EXTRACT(S)]	-Not done	MIC MBC Mean (µL/mL) ± Standard Deviation								Microorganism	MIC90	MBC			
PMC5454990		(Table 3, below)	2.2. Antimicrobial and Cytotoxic Activities All essential oils displayed high antimicrobial activity against E. coli (minimum inhibitory concentration (MIC) < 19.5 µg·mL−1). Cau-L and Cuj-L oils showed notable activity against S. epidermis and B. cereus (Table 3). It is not obvious what component(s) are responsible for the activity against E. coli. Most essential oil components show only marginal activity against this organism. The antibacterial activities against the other bacteria are consistent with the activities of the essential oil components (Table 3). On the other hand, the cytotoxic activity against MCF-7 cells did not display variation in the median inhibitory concentration (IC50) values among all samples with an average of 63.0 µg·mL−1 (Table 3). The main compounds germacrene D, bicyclogermacrene, β-caryophyllene, α-pinene, β-pinene, caryophyllene oxide, β-selinene, 7-epi-α-selinene have been reported as antimicrobial and cytotoxic [29,30,31,32,33]. The observed cytotoxicities of some of the essential oil components are consistent with the cytotoxicities of the essential oils themselves (Table 3).	Antimicrobial and cytotoxic activities of Ocotea essential oils and some major essential oil components. MIC, minimum inhibitory concentration; IC50, median inhibitory concentration.	[ACTIVITY(S)] of [PLANT(S)] [EXTRACT(S)] and some major [EXTRACT(S)] **[COMPONENT(S)]**	P. aer (Pseudomonas aeruginosa), E. coli (Escherichia coli), S. epi (Staphylococcus epidermidis), S. aur (Staphylococcus aureus), B. cer (Bacillus cereus).	MIC (µg·mL−1) IC50 (µg·mL−1)	µg·mL−1							Material	**MIC (µg·mL−1)**	**IC50 (µg·mL−1)**			
PMC5485486	**antiBact erial_DD**	(Table 3, below)	**3.3. Antibacterial Assays** 3.3.1. Disc Diffusion Assay Inhibition zone diameters of the disc diffusion assays were recorded in Table 3. The results indicate that E. coli ATCC 25922 and S. aureus ATCC 25923 were sensitive to essential oils of A. citriodora, while P. aeruginosa ATCC 27583 was resistant.	Inhibition zone diameters (mm) of A. citriodora essential oils on **bacterial strains**.	**[MEASUREMENT(S)] [UNIT(S)]** of **[PLANT(S)] [EXTRACT(S)]** on **[TARGET(S)]**	*AG: Agadir. BM: Beni Mellal. BE: Berkane. DE: Demnate. MA: Marrakech.	Mean Inhibition zone diameters	(mm)		[x] essential oil(s) oil(s) of [x]	Contains "ATCC" Bacterial strains	Ceftriaxone Ofloxacin	Find single/ plural version of words: • diameter/ diameters If column heading contains an asterisk (*) check footer or elsewhere for unabbreviated terms		Bacterial strains	**EO samples from different regions**				
PMC5485486	**antibacte rial_MIC_ MBC**	(Table 4, below)	**3.3.2. Determination of MIC and MBC** The obtained values of MIC and MBC are shown in Table 4. The MIC on E. coli ranged from 2.84 to 3.73mg/ml for MA and BM essential oils, respectively. S. aureus MICs were 3.51mg/mL for BM and 3.87mg/ml for DE essential oils.	Minimal inhibitory concentrations (MIC) and minimal bactericidal concentrations (MBC) of A. citriodora essential oils.	**[MEASUREMENT(S)] [UNIT(S)]** of **[PLANT(S)] [EXTRACT(S)]**	*AG: Agadir. BM: Beni Mellal. BE: Berkane. DE: Demnate. MA: Marrakech.	MIC MBC	mg/mL							**EO samples from different regions**	MIC	MBC			
PMC5486035		(Table 2, below)	**2.4. Antimicrobial Activities** The minimal inhibitory concentrations (MICs) and minimal bactericidal concentrations (MBCs) values of HEO against the American Type Culture Collection (ATCC) and clinical isolates tested bacteria are reported in Table 2. Results of negative controls indicated the complete absence of inhibition of all the strains tested (data not shown). A concentration of 7.11 mg/mL inhibited the growth of all the tested strains with the exception of Pseudomonas aeruginosa ATCC 9027. The same concentration was found to be bactericidal against all strains. Several studies have previously demonstrated the antimicrobial activity of plant essential oils [32,33,34]. The compound 4-carene, also identified amongst the main constituents of the Iranian Cymbobogon Olivieri essential oil, has been implicated in the antimicrobial activity against Gram-positive bacteria, Gram-negative bacteria, and the yeast Candida albicans [35].	Minimal inhibitory concentrations (MICs) and minimal bactericidal concentrations (MBCs) of HEO (expressed as mg/mL) against Gram-positive and Gram-negative bacteria.	**[MEASUREMENT(S)] [UNIT(S)]** of **[PLANT(S)]** (expressed as **[UNIT(S)]**) against **[TARGET(S)]**	HEO, hull essential oil; na, not active.	MIC MBC	mg/mL							Bacterial Strain	MIC	MBC			
PMC5497343	**antiBact erial_MIC**	(Table 3, below)	**MIC of the essential oil of T. muinuta flower** The essential oil of T. minuta flower demonstrated good antibacterial activity against all the test bacteria strains. The minimum inhibitory concentration (MIC) value of 0.06 mg/mL was exhibited for Vibrio spp., E. coli, E. cloacae and L. ivanovii, while the MIC (0.125 mg/mL) for the EO against S. aurius, M. smegatis and S. uberis was higher as shown in Table Table3 3.	Minimum inhibitory concentrations (MIC) of essential oil of T. minuta flower	**[MEASUREMENT(S)]** of **[EXTRACT(S)]** of **[PLANT(S)] [PART(S)]**	Key: A = Essential oil, B = ciprofloxacin, + = Growth, − = no growth				[Plant Name] [Part]	**Gram positive** S. aureus L. ivanovii M. smegatis S. uberis **Gram negative** E. cloacae E. coli Vibro spp.		This table has two columns (A, B) for each measurement heading (0.5, 0.25,....) It also sub-sorts the targets by Gram Positive and Negative		Bacteria	0.5	0.3	0.1	0.1	0.0
PMC5497343	**antiBact erial_MB C**	(Table 4, below)	MBC of the essential oil The essential oil of T. minuta flower displayed incredible antibacterial activities against Gram-negative bacteria test strains (E. cloacae, Vibrio spp. and E. coli) and Gram-positive bacteria (S. uberis) at varied concentrations as showed in Table Table4. 4. The minimum bactericidal concentration of the EO and positive control are shown in Table Table4 4 below.	Minimum bactericidal concentrations (MBC) of essential oil of T. minuta flower	**[MEASUREMENT(S)]** of **[EXTRACT(S)]** of **[PLANT NAME] [PART(S)]**	Key: A = oil, B = ciprofloxacin, + = Growth, − = no growth	Minimum bactericidal concentrations (MBC) **Concentrations** of essential oil **(mg/mL)** and **MBC (mg/mL)**	Concentrations (mg/mL) MBC (mg/mL)	Titration		Bacteria	Ciprofloxacin			Bacteria	Concentrations of essential oil (mg/mL) (0.5 **0.25** **0.125** **0.06** **0.03**) A B A B A B A B A B	MBC (mg/mL) (Oil Ciprofloxacin)			
PMC5527690		**Images instead of tables**																		
PMC5543433	**antiBact erial_MIC**	(Table 2, below)	**Antimicrobial activities** The antibacterial activity of C. limon essential oil was evaluated against Gram + positive (B. cereus, E. faecalis, S. aureus, S. epidermis, B. subtilis, L. monocytogenes and M. luteus) and Gram-negative (P. aeruginosa, E.coli, S. enteritidis and K. pneumoniae) bacteria. The antibacterial activity was assessed by evaluating the inhibition zone (IZ) and the determination of MIC values. As can be seen in Table Table2. 2, CIEO showed varying degrees of antibacterial activity against all strains tested. The inhibition zones were in the range of 13-26 mm. Among Gram positive bacteria, highest inhibitory zone was observed against L. monocytogenes (26 mm) followed by B. cereus (24 mm) and S. aureus (22 mm). Among Gram negative, highest inhibitory zone was observed against S. enteritidis (18 mm). The inhibition zone for Gentamicin (10 µg/well), which was used as positive controls for bacteria, ranged from 12 to 25 mm. Negative control did not show any inhibitory effect against the tested bacteria.	Antibacterial activity of CIEO against foodborne, spoiling bacteria and determination of the Minimum Inhibitory Concentrations (MICs) expressed in mg/ml	**[ACTIVITY(S)]** activity of **[PLANT(S)] [EXTRACT(S)]** against **[SUBSTRATE(S)] [SUBSTRATE EFFECT(S)] [TARGET(S)]** and determination of the **[MEASUREMENT(S)]** expressed in **[UNIT(S)]**	Values are given as mean ± S.D. of triplicate experiments aDiameter of inhibition zones including diameter of disc 6 mm b EO Lemon citrus essential oil (50 µl/well) cThe used concentration of Gentamicin was 10 µg/well	**(MICs)** **Inhibition zones diameter (mm)** **(50 µl/well)**	mg/ml **(mm)** **± S.D.**	Diffusion Disk 6 mm			Gentamicin	Note that Plant/ Extract has been abbreviated to ITALICIZED first to letters of the plant name connected to CAPITALIZED "EO" CIEO		Strains (Bacterial Strains)	Inhibition zones diameter (mm)	MIC (mg/ml)			
PMC5543433	**antiFung al_MFC_ Zone**	(Table 3, below)	The antifungal activity was evaluated against Aspergillus sp., Fusarium sp. and Alternaria alternata. Results showed a strong inhibitory effect of CIEO on the growth of A. niger and A. flavus with inhibition zone diameters of 26 mm and MIC values of 0.625 and 0.312 mg/ml respectively (Table (Table3). 3). Also, the CIEO exhibited an antifungal activity against Fusarium sp. and Aspergillus sp., which are responsible for spoilage of many foods. The maximal inhibition zone diameters were 17–21 mm and MIC values ranged from 0.625 to 1.25 mg/ml (Table (Table3). 3). The high antifungal activity may be attributed to the presence of the said chemical components in the essential oil. The antimicrobial activity of the essential oils of C. limon apparently related to its terpenes type components such as pinene, myrcene and limonene (Table (Table1). 1), since there is a relationship between the chemical structures of the most abundant oils and their antimicrobial activities. Limonene has been shown to have strong antifungal properties [38]. Although the mechanism of action of terpenes is not fully understood, it is thought to involve membrane disruption by the lipophilic compounds [39]. The essential oils containing terpenes are also reported to possess antimicrobial activity [40], which are consistent with our present studies.	Antifungal activity of CIEO and determination of the Minimum Fungicidal Concentrations (MFCs) expressed in mg/ml	**[ACTIVITY(S)]** activity of **[PLANT(S)] [EXTRACT(S)]** and determination of the **[MEASUREMENT(S)]** expressed in **[UNIT(S)]**	Values are given as mean ± SD of triplicate experiments aDiameter of inhibition zones including diameter of disc 6 mm b EO Lemon citrus essential oil (50 µl/ well) cThe used concentration of amphotericin B was 20 µg/well	Minimum Fungicidal Concentrations (MFCs)	mg/ml							Fungal strains	Inhibition zones diameter (mm)	MIC (mg/ml)			
PMC5568258	**antibacte rial_MIC_ MBC**	(Table 2, below)	MIC and MBC determination The MIC and MBC results are shown in Table Table2. 2. The controls validated the tests. The positive control (PC) showed no bacterial growth at higher concentrations, demonstrating the effectiveness of gentamicin as a positive control in the test, since the antibiotic's inhibitory effect on the bacteria occurred up to a concentration of 0.004 mg/mL (4 µg/mL), with equivalence between the MIC and MBC. Bacterial growth occurred in all assays for both the negative control (NC) and for the growth control (GC), confirming the non-bacterial inhibition of Tween 80 and the viability of the strains used and demonstrating the antibacterial effect of M. urundeuva oil.	Minimum Inhibitory Concentration (MIC) and Minimum Bactericidal Concentration (MBC) of the Myracrodruon urundeuva essential oil	**[MEASUREMENT(S)]** of the **[PLANT(S)] [EXTRACT(S)]**	ATCC American Type Culture Collection, INCQS Instituto Nacional de Controle de Qualidade em Saúde (Fiocruz - Brazil)	MIC and MBC (mg/mL)	mg/mL		Myracrodruon urundeuva essentia l oil		Gentamicin			Bacteria	MIC	MBC			
PMC5590062		(Table 3, below)	3.3. Antimicrobial Activity The antimicrobial activities of the essential oils from the leaves of both A. schaueriana specimens were evaluated against C. albicans, A. brasiliensis, S. aureus, P. aeruginosa, and E. coli. The growth inhibitions obtained for both oils, at the highest dose tested (217 µg/mL), are presented in Table 3. P. aeruginosa was the most sensitive organism for both oils, presenting the highest growth inhibition.	Antimicrobial activity of the essential oil from the leaves of A. schaueriana collected at Estação Ecológica Jureia-Itatins (**1**) and Parque Estadual da Ilha do Cardoso (**2**).	**[ACTIVITY(S)]** of the **[EXTRACT(S)]** from the **[PART(S)]** of **[PLANT(S)]** collected at **[COLLECTION LOCATION(S)]**.	a Concentration in each microplate well. N.A. = not applicable. − no inhibition; + total inhibition.	**Growth Inhibition (%) for 217 µg/mL (Mean ± CI95, *n* = 3)**					Ciprofloxacin (50 µg/mL) a Nystatin (50 µ g/mL) a			Sample	Growth Inhibition (%) for 217 µg/mL (Mean ± CI95, n = 3)				
PMC5590063	**antiFung al_MFC**	(Table 2, below)	All tested *Candida* species were sensitive to the essential oils and MIC values ranged from 0.625 to 1.25 µL/mL (Table 2). *C. albicans* and *C. krusei* were more sensitive to the *V. guianensis* oil, while *C. glabrata* and *C. parapsilosis* were more sensitive to the *H. courbaril* oil. All the oils showed fungicidal activity and all *Candida* strains were sensitive to the positive control fluconazole (Table 2). According to MFC/MIC ratios, the effect of all oils on the *Candida* species can be considered fungicidal.	Minimum inhibitory concentrations (MICs) and minimal fungicidal concentrations (MFCs) on *Candida* species of the essential oils from the leaves of *H. courbaril* var. *courbaril*, *M. peruiferum*, and *V. guianensis* as well as of positive control fluconazole.	**[MEASUREMENT(S)]** on **[TARGET(S)]** species of the **[EXTRACT(S)]** from the **[PART(S)]** of **[PLANT(S)]** as well as of positive control **[CONTROL(S)]**		MIC (µL/mL) MFC (µL/mL) MFC/MIC	(µL/mL)				fluconazole	RotGrid		Sample					

Table 5

Antifungal activities (MIC and MFC) of *C. decurrens*, *C. sempervirens* and *T. articulata* essential oils

Microorganism	Mean (µL/mL) ± Standard Deviation						Nystatin Mean (µg/mL) ± Standard Deviation	
	C. decurrens		*C. sempervirens*		*T. articulata*			
	MIC90	MFC	MIC90	MFC	MIC90	MFC	MIC90	MFC
Candida albicans	< 64	-	0.42 ± 0.027	1.319 ± 0.066	0.659 ± 0.053	1.515 ± 0.085	0.84 ± 0.062	1 ± 0.062
Candida glabrata	< 64	-	< 64	-	< 64	-	0.84 ± 0.032	1 ± 0.045
Candida krusei	< 64	-	< 64	-	< 64	-	1.148 ± 0.065	2 ± 0.034
Candida parapsilosis	0.824 ± 0.052	2.828 ± 0.182	0.757 ± 0.067	1.64 ± 0.058	0.659 ± 0.042	1.148 ± 0.087	0.84 ± 0.076	1 ± 0.041

-Not done

Table 3

Antimicrobial and cytotoxic activities of *Ocotea* essential oils and some major essential oil components. MIC, minimum inhibitory concentration; IC_{50}, median inhibitory concentration.

Material	MIC (µg·mL^{-1})					IC_{50} (µg·mL^{-1})
	P. aer	*E. coli*	*S. epi*	*S. aur*	*B. cer*	MCF-7
Can-L	1250.0	19.5	625.0	625.0	625.0	63.9 ± 3.7
Cau-L	1250.0	19.5	625.0	625.0	312.5	64.0 ± 3.7
Cuj-L	1250.0	19.5	312.5	625.0	312.5	67.7 ± 3.7
α-Pinene	625	312	-	312	625	69.5 ± 1.3
β-Pinene	1250	625	-	625	312	71.2 ± 2.0
Limonene	1250	625	-	312	625	77.4 ± 1.2
β-Caryophyllene	1250	312	-	312	156	59.4 ± 5.1
α-Humulene	1250	625	-	312	312	26.5 ± 5.6
Germacrene D	1250	625	-	156	625	69.6 ± 2.5
Caryophyllene oxide	1250	1250	-	1250	156	73.4 ± 3.7
Gentamicin control	1.22	2.44	<19.5	0.61	1.22	-
Tingenone control	<19.5	<19.5	-	2.44	1.22	16.8 ± 1.7

P. aer (*Pseudomonas aeruginosa*), *E. coli* (*Escherichia coli*), *S. epi* (*Staphylococcus epidermidis*), *S. aur* (*Staphylococcus aureus*), *B. cer* (*Bacillus cereus*).

Table 3

Inhibition zone diameters (mm) of *A. citriodora* essential oils on bacterial strains.

Bacterial strains	Inhibition diameter (mm)						
	AG*	BM*	BE*	DE*	MA*	Ceftriaxone	Ofloxacin
E. coli ATCC 25922	8	10	8	8	10	28	32
S. aureus ATCC 25923	8	11	11	11	11	25	28
P. aeruginosa ATCC 27853	6	6	6	6	6	14	18

*AG: Agadir. BM: Beni Mellal. BE: Berkane. DE: Demnate. MA: Marrakech.

Table 4

Minimal inhibitory concentrations (MIC) and minimal bactericidal concentrations (MBC) of *A. citriodora* essential oils.

	MIC and MBC in mg/ml			
	E. coli		*S. aureus*	
	MIC	MBC	MIC	MBC
AG*	8.37 ± 1.27	12.48 ± 2.27	5.84 ± 0.44	9.73 ± 1.81
BM*	3.73 ± 1.00	7.42 ± 0.30	3.51 ± 0.37	9.51 ± 2.80
BE*	5.24 ± 0.17	8.49 ± 0.33	6.42 ± 0.46	12.12 ± 1.28
DE*	5.68 ± 1.25	9.15 ± 1.53	3.87 ± 0.36	10.31 ± 2.79
MA*	2.84 ± 0.83	10.06 ± 3.93	4.69 ± 1.15	7.43 ± 1.32

*AG: Agadir. BM: Beni Mellal. BE: Berkane. DE: Demnate. MA: Marrakech.

Table 2

Minimal inhibitory concentrations (MICs) and minimal bactericidal concentrations (MBCs) of HEO (expressed as mg/mL) against Gram-positive and Gram-negative bacteria.

Bacterial Strain	MIC	MBC
S. aureus ATCC 6538	7.11	7.11
E. coli ATCC 10,536	7.11	7.11
P. aeruginosa ATCC 9027	na	na
S. aureus ATCC 43,300 (MRSA)	7.11	7.11
S. aureus 74CCH	7.11	7.11
S. aureus 7786	7.11	7.11
S. aureus 815	7.11	7.11

HEO, hull essential oil; na, not active.

Table 3

Minimum inhibitory concentrations (MIC) of essential oil of *T. minuta* flower

Bacteria	Concentrations of essential oil (mg/mL) and MIC (mg/mL)											
	0.5		0.25		0.125		0.06		0.03		MIC(mg/mL)	
Gram positive	A	B	A	B	A	B	A	B	A	B	Oil	Ciprofloxacin
S. aureus	−	−	−	−	−	−	+	−	+	−	0.125	0.00
L. ivanovii	−	−	−	−	−	−	−	−	+	−	0.06	0.00
M. smegatis	−	−	−	−	−	−	+	−	+	+	0.125	0.06
S. uberis	−	−	−	−	−	−	+	−	+	−	0.125	0.00
Gram negative												
E. cloacae	[illegible]										0.06	0.00
E. coli	[illegible]										0.06	0.125
Vibro spp.	[illegible]										0.06	0.25

Key: A = Essential oil, B = ciprofloxacin, + = Growth, − = no growth

Table 4

Minimum bactericidal concentrations (MBC) of essential oil of *T. minuta* flower

Bacteria	Concentrations of essential oil (mg/mL) and MBC (mg/mL)											
	0.5		0.25		0.125		0.06		0.03		MBC (mg/mL)	
Gram positive	A	B	A	B	A	B	A	B	A	B	Oil	Ciprofloxacin
S. aureus	[illegible]										0.06	0.06
L. ivanovii	[illegible]										0.06	0.00
M. smegatis	[illegible]										0.06	0.06
S. uberis	[illegible]										0.5	0.00
Gram negative												
E. cloacae	[illegible]										0.06	0.00
E. coli	[illegible]										0.06	0.125
Vibro spp.	[illegible]										0.125	0.25

Key: A = oil, B = ciprofloxacin, + = Growth, − = no growth

Table 2

Antibacterial activity of CIEO against foodborne, spoiling bacteria and determination of the Minimum Inhibitory Concentrations (MICs) expressed in mg/ml

Strains	Inhibition zones diameter (mm)^a		MIC (mg/ml)
	EO^b	Gentamicin^c	
Bacterial strains			
Gram positive			
Bacillus subtilis ATCC 6633	19 ± 0.6^b	20 ± 0.2^a	0.625 ± 0.4
Bacillus cereus ATCC 14579	24 ± 0.6^b	20 ± 0.4^a	1.25 ± 0.6
Staphylococcus aureus ATCC 25923	22 ± 0.3^b	20 ± 0.4^a	0.078 ± 0.3
Staphylococcus epidermis ATCC 12228	16 ± 0.6^b	20 ± 0.2^a	1.25 ± 0.6
Enterococcus faecalis ATCC 29212	15 ± 0.3^b	12 ± 0.2^a	0.625 ± 0.5
Listeria monocytogenes ATCC 19117	26 ± 0.5^b	20 ± 0.2^a	0.039 ± 0.3
Gram negative			
Salmonella enterica ATCC 43972	18 ± 0.6^b	18 ± 0.4^a	0.625 ± 0.4
Escherichia coli ATCC 25922	15 ± 0.5^b	21 ± 1.0^b	0.625 ± 0.3
Pseudomonas aeruginosa ATCC 9027	24 ± 0.2^b	18 ± 0.7^b	2.5 ± 0.6

Values are given as mean ± S.D. of triplicate experiments

^{a}Diameter of inhibition zones including diameter of disc 6 mm

^{b} *EO Lemon citrus* essential oil (50 µl/well)

^{c}The used concentration of Gentamicin was 10 µg/well

Table 3

Antifungal activity of CIEO and determination of the Minimum Fungicidal Concentrations (MFCs) expressed in mg/ml

Fungal strains	Inhibition zones diameter (mm)^a		MFC (mg/ml)
	EO^b	Amphotericin B^c	
Aspergillus niger (CTM 10099)	26 ± 0.5^b	15 ± 0.5^a	0.625 ± 0.4
Aspergillus flavus (food isolate)	26 ± 0.6^b	10 ± 0.3^a	0.312 ± 0.6
Aspergillus nidulans (food isolate)	20 ± 0.6^b	0^a	0.625 ± 0.5
Aspergillus fumigatus (food isolate)	18 ± 0.4^b	0^a	0.625 ± 0.7
Fusarium graminearum (ISPAVE 271)	20 ± 0.4^b	14 ± 0.5^a	0.625 ± 0.6
Fusarium oxysporum (CTM10402),	18 ± 0.5^b	14 ± 0.2^a	0.625 ± 0.5
Fusarium culmorum (ISPAVE 21w)	21 ± 0.7^b	12 ± 0.7^a	0.312 ± 0.8
Alternaria alternata (CTM 10230)	17 ± 0.6^b	14 ± 0.6^a	1.25 ± 0.6

Values are given as mean ± SD of triplicate experiments

^{a}Diameter of inhibition zones including diameter of disc 6 mm

^{b} *EO Lemon citrus* essential oil (50 µl/well)

^{c}The used concentration of amphotericin B was 20 µg/well

Table 2

Minimum Inhibitory Concentration (MIC) and Minimum Bactericidal Concentration (MBC) of the *Myracrodruon urundeuva* essential oil

Bacteria	Concentrations (mg/mL)			
	M. urundeuva essential oil		Gentamicin	
	MIC	MBC	MIC	MBC
Staphylococcus aureus (ATCC 25923)	0.220	0.220	0.004	0.004
Staphylococcus epidermidis (ATCC 12228)	0.110	0.220	0.004	0.004
Escherichia coli (ATCC 25922)	0.880	1.750	0.004	0.004
Pseudomonas aeruginosa (ATCC 27853)	7.000	7.000	0.004	0.004
Salmonella Enteritidis (INCQS 500258)	0.440	0.440	0.004	0.004

ATCC American Type Culture Collection, *INCQS* Instituto Nacional de Controle de Qualidade em Saúde (Fiocruz - Brazil)

Table 3

Antimicrobial activity of the essential oil from the leaves of *A. schaueriana* collected at Estação Ecológica Jureia-Itatins (**1**) and Parque Estadual da Ilha do Cardoso (**2**).

Sample	Growth Inhibition (%) for 217 µg/mL (Mean ± CI_{95}, *n* = 3)				
	S. aureus (ATCC 6538)	*E. coli* (ATCC 8739)	*P. aeruginosa* (ATCC 9027)	*C. albicans* (ATCC 10231)	*A. brasiliensis* (ATCC 16404)
1	-	13.5 ± 11.6	66.8 ± 4.8	15.3 ± 5.8	-
2	16.0 ± 10.6	33.7 ± 2.2	74.5 ± 9.3	12.1 ± 7.3	-
Ciprofloxacin (50 µg/mL) ^{a}	95.0	100	100	N.A.	N.A.
Nystatin (50 µ g/mL) ^{a}	N.A.	N.A.	N.A.	100	+

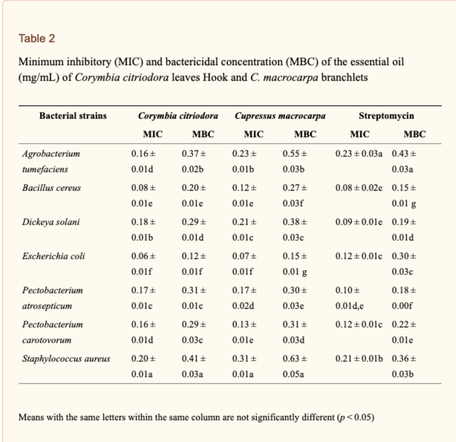
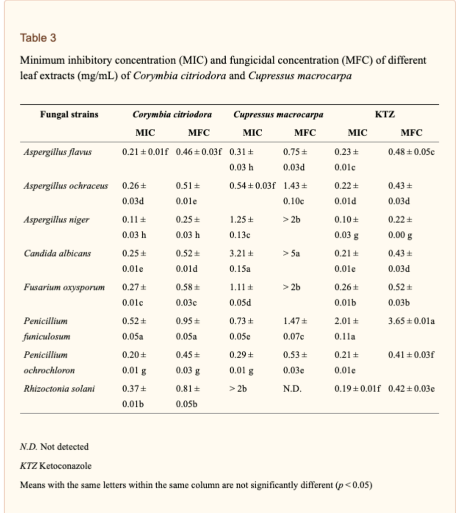
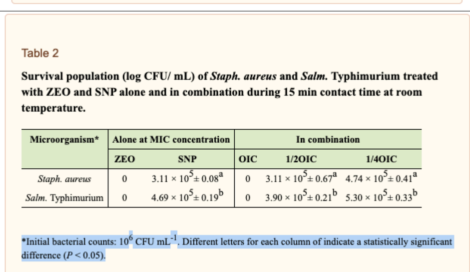
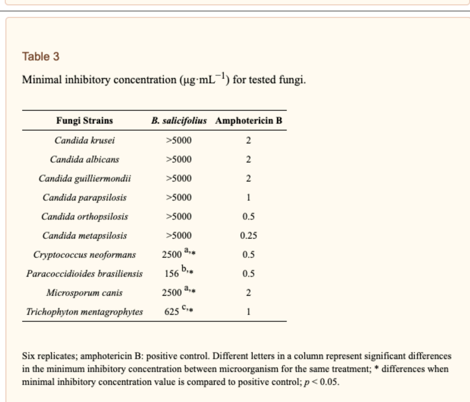
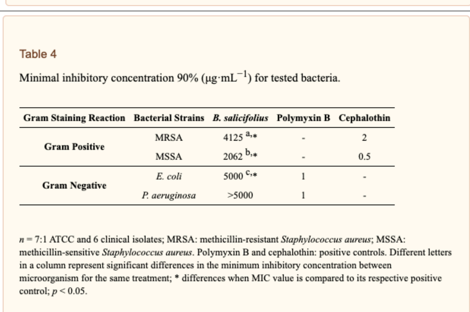
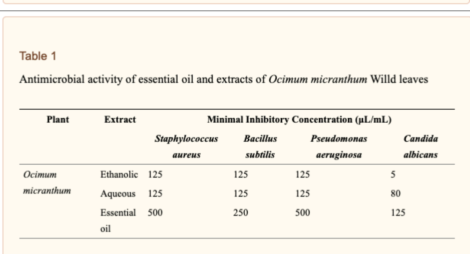
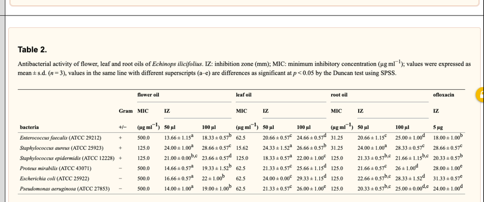
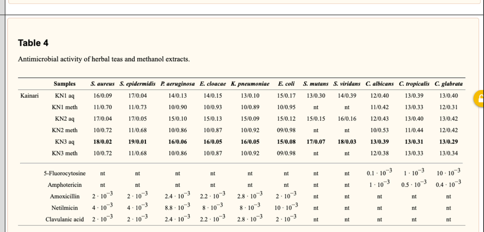
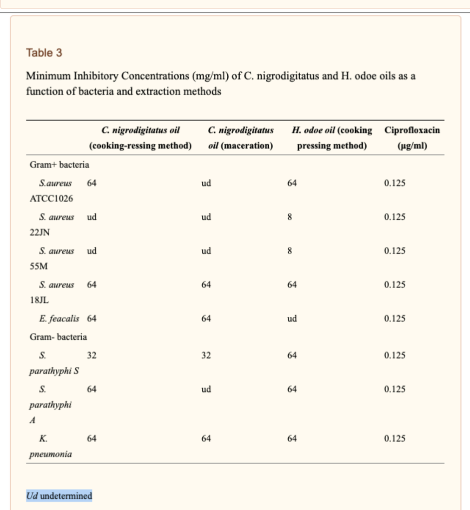
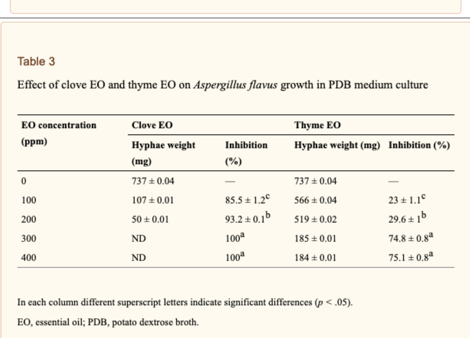
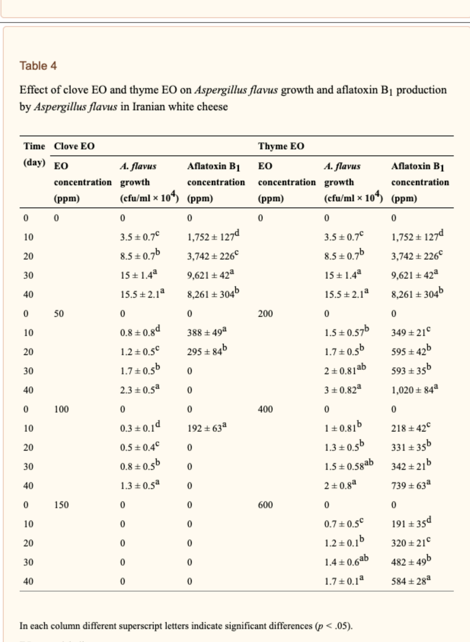
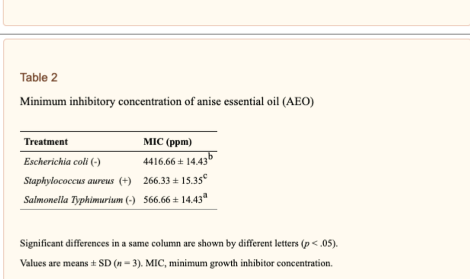
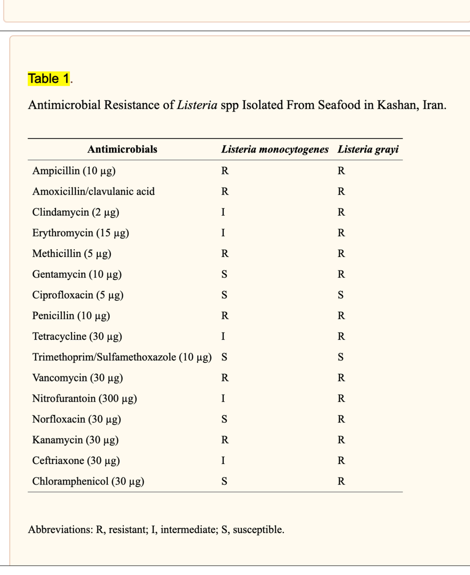
^{a} Concentration in each microplate well. N.A. = not applicable. − no inhibition; + total inhibition.

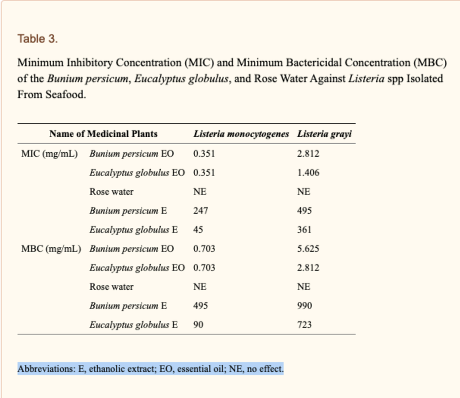
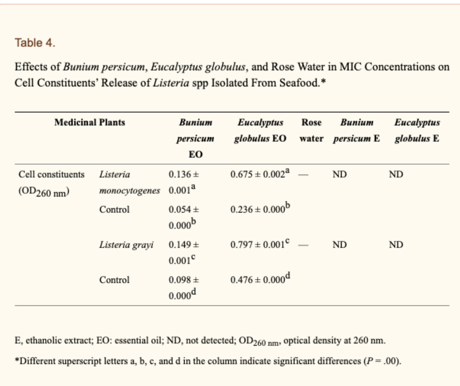
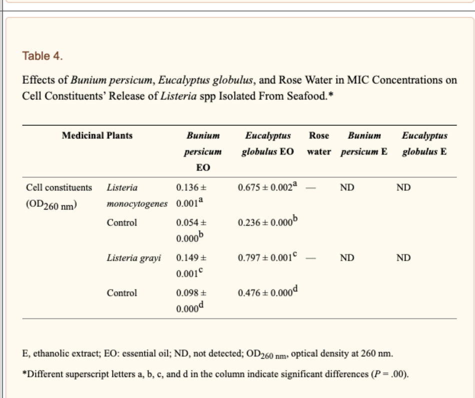
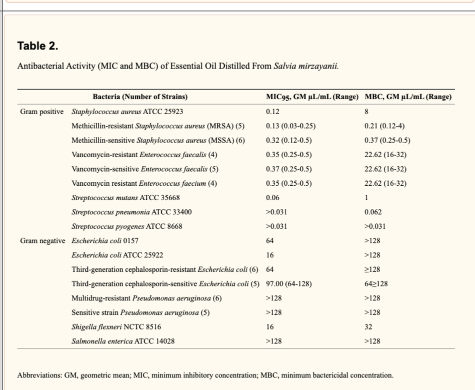
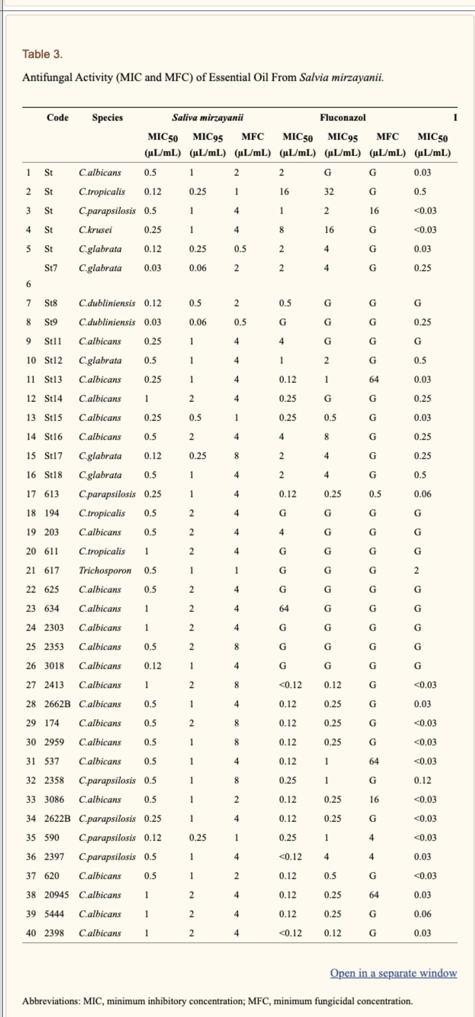
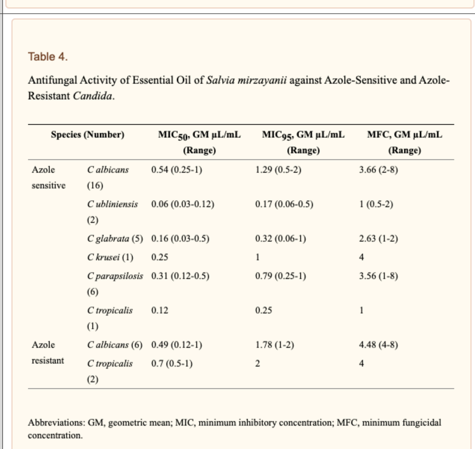
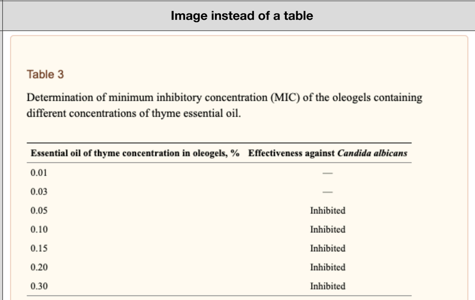
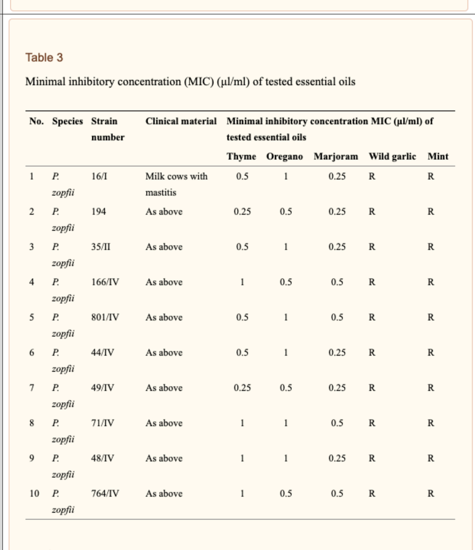
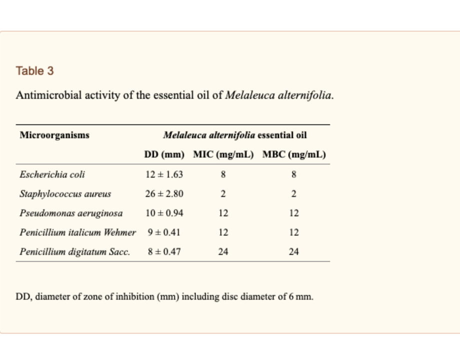
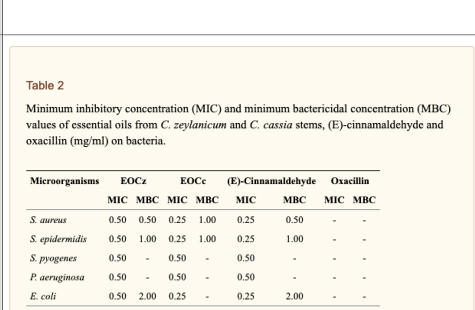
Table 2

Minimum inhibitory concentrations (MICs) and minimal fungicidal concentrations (MFCs) on *Candida* species of the essential oils from leaves of *H. courbaril* var. *courbaril*, *M. peruiferum*, and *V. guianensis* as well as of positive control fluconazole.

Sample		Fungi				
		C. albicans	*C. glabrata*	*C. krusei*	*C. parapsilosis*	*C. tropicalis*
H. courbaril var. *courbaril*	MIC (µL/mL)	1.25	0.625	1.25	1.25	0.625
	MFC (µL/mL)	2.5	1.25	1.25	2.5	0.625
	MFC/MIC	2	2	1	2	1
M. peruiferum	MIC (µL/mL)	1.25	1.25	0.625	0.625	1.25
	MFC (µL/mL)	2.5	1.25	1.25	1.25	2.5
	MFC/MIC	2	1	2	2	2
V. guianensis	MIC (µL/mL)	0.625	1.25	0.625	1.25	1.25
	MFC (µL/mL)	1.25	2.5	1.25	2.5	2.5
	MFC/MIC	2	2	2	2	2
Fluconazole	MIC (µg/mL)	1.56	1.56	0.39	0.78	1.56
	MFC (µg/mL)	3.12	1.56	0.39	1.56	1.56
	MFC/MIC	2	1	1	2	1

Article	Table type	Table Image	paragraphs just before the table (with title, if any)	Table_Caption	Keywords_Phrases	Table_Footnote_KEY_Abbreviations	Measurements	Measurement Unit	Method	Plant Material	Targets	Non-Plant Control Substances, Solvents, Media, Substrate	Notes	Table Type	Col1	Col2	Col3	Col4	Col5	Col6
PMC5590066	antiBacterial_MIC_DD	Table 3 Antibacterial activity of *Achillea millefolium* L. EO against bacterial pathogens. Microorganism; Gram +/−; Inhibition Zone Diameter (mm) [a]: Essential Oil [b] (10 μg/mL, 5 μg/mL), Antibiotic [c] ((30/10) μg); Essential Oil MIC [d] (μg/mL) *B. subtilis*; G+; 11.0 ± 0.2; 8.6 ± 0.1; 16.8 ± 0.1; 310 ± 20 *B. cereus*; G+; 13.6 ± 0.2; 10.7 ± 0.2; 29.0 ± 0.2; 100 ± 10 *St. aureus*; G+; 12.8 ± 0.1; 9.1 ± 0.2; 21.0 ± 0.3; 120 ± 12 *St. epidermidis*; G+; na [e]; na; 25.8 ± 0.1; na *S. typhimurium*; G−; 9.2 ± 0.2; na; 31.2 ± 0.3; 2000 ± 40 *S. typhimurium*; G−; na; na; 34.0 ± 0.1; na *S. enteritidis*; G−; na; na; 32.2 ± 0.3; na *S. agona*; G−; 10.4 ± 0.4; 9.1 ± 0.3; 20.8 ± 0.3; 1000 ± 40 *E. coli*; G−; na; na; 26.4 ± 0.2; na ± was an SD from at least three independent trials; [a] Diameter of inhibition area; [b] Each well contained 10 μL of ethanolic solution of essential oil (10 and 5 μg/mL); [c] Ceftazidime/Clavulanic Acid (30/10 μg/disc) was a positive control; [d] MIC: minimum inhibitory concentration (values in μg/mL); [e] na: no activity.	3.3. Antibacterial Activity of EO Antibacterial effect of EO was evaluated in vitro against nine pathogenic bacteria species (Table 3). Gram-positive bacteria were more delicate to the EO than Gram-negative bacteria. *B. cereus* was the most susceptible bacteria to *A. millefolium* oil at the applied concentrations (5 and 10 μg/mL). The smallest inhibition zones were obtained in *S. typhimurium* and *S. agona* cultures while *St. epidermidis, S. enteritidis*, and *E. coli* were resistant against all concentrations of *A. millefolium* oil. MIC for *B. cereus* and *St. aureus* were 100 and 120 μg/mL, respectively; while the MIC for *B. subtilis* was 310 μg/mL. Among the Gram-negative tested bacteria, a remarkable antibacterial effect was observed only for *S. typhimurium* and *S. agona* with their respective MIC values 2000 and 1000 μg/mL. The effect of *A. millefolium* oil from Turkey [3] was also tested against *St. aureus* and *B. cereus*; it was found that the MIC was 72 mg/mL, which is remarkably higher than the MIC of *A. millefolium* oil measured in our study. As was shown, the composition of *A. millefolium* oils from various locations may be rather different. The properties and the content of individual constituents may have an important power on the antibacterial effect of oil against different bacteria species. For instance, sabinene, 1,8-cineole, and camphor, which were abundant in *A. millefolium* oil studied in this work, are well-known natural chemicals with antibacterial potentials [21]. The EO also studied in our work also contained 12% of germacrene-D and 7.3% of (*E*)-nerolidol, which were absent in the Turkish oil. The antibacterial activities of germacrene-D and (*E*)-nerolidol were previously reported as well [22].	Antibacterial activity of *Achillea millefolium* L. EO against bacterial pathogens.	**[ACTIVITY(S)]** activity of **[PLANT(S)] [EXTRACT(S)]** against **[TARGET(S)]**.	± was an SD from at least three independent trials; a Diameter of inhibition area (mm); b Each well contained 10 μL of ethanolic solution of essential oil (10 and 5 μg/mL); c Ceftazidime/Clavulanic Acid (30/10 μg/disc) was a positive control; d MIC: minimum inhibitory concentration (values in μg/mL); e na: no activity.	Inhibition Zone Diameter (mm) **EO**: 10 μg/mL | 5 μg/mL **Antibiotic**: (30/10) μg **MIC**: μg/mL ± was an **Standard Deviation SD** from at least three independent trials; a Diameter of inhibition area (mm); b Each well contained 10 μL of ethanolic solution of essential oil (10 and 5 μg/mL); c Ceftazidime/Clavulanic Acid (30/10 μg/disc) was a positive control; d MIC: minimum inhibitory						THIS IS A COMPLEX TABLE		**Microorganism**	**Gram +/−**	Inhibition Zone Diameter (mm) a Essential Oil b	Antibiotic c		**Essential Oil MIC d**
PMC5590066		Table 4 Antifungal activity of *Achillea millefolium* L. EO (5 μL corresponding to 1000 ppm/disc). Fungal Strain; Mycelial Growth Inhibition [a]: Essential Oil (mm, %) *R. stolonifer*; 11.5 ± 1.4; 65.7 ± 2.2 *V. dahliae*; 10.1 ± 1.4; 65.3 ± 2.6 *C. gloeosporioides*; 12.2 ± 1.4; 60.9 ± 2.5 *B. cinerea*; 18.4 ± 1.4; 50.8 ± 3.8 *A. niger*; 24.8 ± 0.8; 40.7 ± 0.5 ± was an SD from at least three independent trials; [a] expressed in mm from radial evolution; % of radial growth inhibition.	**3.4. Antifungal Activity of EO** EO of A. millefolium showed remarkable antifungal activity against all plant fungi tested (Table 4) at 5 μL (1000 ppm/disc). It exhibited an inhibitory result on the development of R. stolonifer (65.7%) V. dahliae (56.3%), C. gloeosporioides (60.9%), Botrytis cinerea (50.8%), and Aspergillus niger (40.7%). The inhibitory effects might be related to the presence of mono- (55.7%) and sesquiterpenes (36.5%) in the EO [23].	Antifungal activity of Achillea millefolium L. EO (5 μL corresponding to 1000 ppm/disc).	**[ACTIVITY(S)]** activity of **[PLANT(S)] [EXTRACT(S)] (5 μL corresponding to 1000 ppm/disc).**	± was an SD from at least three independent trials; a expressed in mm from radial evolution; % of radial growth inhibition.									Fungal Strain	mm	%			
PMC5590066	AntibacterialMIC	Table 5 Minimum inhibitory concentration (MIC) of *A. millefolium* L. EO. Fungal Strain; MIC [a] (Oil) *Rhizopus stolonifer* DSM-2194; 1.6 *Verticillium dahliae* DSM-11938; 3.1 *Colletotrichum gloeosporioides* DSM-62146; 3.4 *Botrytis cinerea* DSM-5144; 3.6 *Aspergillus niger* DSM-1957; 4.7 [a] MIC, minimum inhibitory concentration (values in mg/mL).	The MICs defined as the deepest concentrations of the EO that allows for full progress inhibition of *R. stolonifer*, *V. dahliae*, *C. gloeosporioides*, *B. cinerea*, and *A. niger* were 1.6, 3.1, 3.4, 3.6, and 4.7 mg/mL, respectively (Table 5). *R. stolonifer* was discovered to be the greatest sensitive fungal pathogens towards the *A. millefolium* EO.	Minimum inhibitory concentration (MIC) of A. millefolium L. EO.	**[MEASUREMENT(S)]** of **[PLANT(S)] [EXTRACT(S)]**										Fungal Strain	MIC a				
PMC5590067	AntiFungal_ZOI	Table 4 Antifungal activity of *Achillea millefolium* L. EO (5 μL corresponding to 1000 ppm/disc). Fungal Strain; Mycelial Growth Inhibition [a]: Essential Oil (mm, %) *R. stolonifer*; 11.5 ± 1.4; 65.7 ± 2.2 *V. dahliae*; 10.1 ± 1.4; 65.3 ± 2.6 *C. gloeosporioides*; 12.2 ± 1.4; 60.9 ± 2.5 *B. cinerea*; 18.4 ± 1.4; 50.8 ± 3.8 *A. niger*; 24.8 ± 0.8; 40.7 ± 0.5 ± was an SD from at least three independent trials; [a] expressed in mm from radial evolution; % of radial growth inhibition.	3.3. Antimicrobial Activity Regarding antimicrobial activity, initially, disk diffusion assays were conducted with the yeasts and bacterial strains listed in Table 1 in order to screen for antimicrobial activity. No bacterial strains were sensitive to essential oil from *Z. monogynum*, but the crude oil was sensitive to yeast, especially *Cryptococcus* sp. (Supplementary Table S1). Since no biological activity was detected for bacterial strain in this qualitative assay, no further experiments were conducted with these microorganisms. However, the MIC test applied to the yeast species listed in Table 1 confirmed that all yeast strains were sensitive to essential oil at concentrations ranging from 0.75 (*S. cerevisae*) to 6.0 mg/mL (*Candida* sp.) with 90% growth inhibition (Table 4).	Minimum inhibitory concentrations (MICs) for *Z. monogynum* essential oil and positive control (fluconazole) both expressed in mg/mL. Numbers in parenthesis represent the average percentage inhibition for each MIC followed by the standard deviation.	**[MEASUREMENT(S)]** for **[PLANT(S)] [EXTRACT(S)]** and positive control **[CONTROL(S)]** both expressed in **[UNIT(S)]**.		Minimum inhibitory concentrations (MICs)	mg/mL Numbers in parenthesis represent the average percentage inhibition for each MIC followed by the standard deviation				fluconazole			Species	OEZM (mg/mL)	Fluconazol (mg/mL)			
PMC5590070	Mixed with Antimicrobial	Table 2 Anti-inflammation, antioxidant, antibacterial, and cytotoxic activities of *T. vulgare* essential oil and its main constituents. [illegible]	We evaluated the biological properties of *T. vulgare* essential oil, including anti-inflammatory, antioxidant, antibiotic, and cytotoxic effects, in vitro using cellular models. Our results for anti-inflammatory activity (Table 2), showed that the *T. vulgare* essential oil inhibited NO production (induced by LPS) with an IC50 of 72 μg·mL−1. Evaluation of the anti-inflammatory properties of the main compounds present in the oil showed that the most active compound was α-humulene with an IC50 of 15 μg·mL−1 (Table 2). Fernandes et al. [27] reported that α-humulene reduced rat paw edema that had been induced by carrageenan. It also inhibited COX-2 and iNOS expression. Moreover, the authors concluded that α-humulene might represent an important compound for the management and/or treatment of inflammatory diseases [27]. Other compounds, including α-terpinene, α-pinene, and β-pinene were also effective with an IC50 ranging from 30 to 46 μg·mL−1 while caryophyllene oxide also inhibited NO production induced by LPS with an IC50 of 183 μg·mL−1. In a previous study, α-pinene was shown to inhibit NF-κB and JNK activation as well as the expression of iNOS [28]. The anti-inflammatory properties of β-pinene and α-terpinene have also been reported [29,30] as has caryophyllene oxide *in vivo* on mice models [31].	Anti-inflammation, antioxidant, **antibacterial**, and cytotoxic activities of T. vulgare essential oil and its main constituents	**[ACTIVITY(S)]** activities of **[PLANT(S)] [EXTRACT(S)] and its main constituents**	nd: not determined; L-NAME (1 mM), used as an anti-inflammatory positive control, produced an inhibition of NO production of 64.1%; Quercetin, used as an antioxidant positive control, had an IC50 of 0.043 ± 0.002 μg·mL−1; Gentamycin and chloramphenicol were used as antibiotic positive controls. Gentamycin had an MIC90 of 0.9 ± 0.2 μg·mL−1 for E. coli and 0.0050 ± 0.00005 μg·mL−1 for S. aureus. Chloramphenicol had an MIC90 of 0.9 ± 0.1 μg·mL−1 for E. coli and 0.73 ± 0.03 μg·mL−1 for S. aureus; Etoposide, used as a cytotoxic positive control, had an IC50 of 2.3 ± 0.2 μM, 2.8 ± 0.4 μM and 19 ± 3 μM for A-549, DLD-1, and WS1, respectively; All the experiments were carried out in triplicate and presented results are representative of at least three different experiments.	Antibacterial IC50	(μg·mL−1)	We tested the antibacterial activities of T. vulgare essential oil and compounds against gram-negative Escherichia coli (ATCC bacteria 25922) and gram-positive Staphylococcus aureus (ATCC bacteria 25923) using **the antibacterial hydrophobic assay** as described by Côté et al. [25]. This new method was developed and	T. vulgare essential oil and its main constituents		Gentamycin and chloramphenicol were used as antibiotic positive controls. Gentamycin had an MIC90 of 0.9 ± 0.2 μg·mL−1 for E. coli and 0.0050 ± 0.00005 μg·mL−1 for S. aureus. Chloramphenicol had an MIC90 of 0.9 ± 0.1 μg·mL−1 for E. coli and 0.73 ± 0.03			**Compounds**	**Anti-Inflammation IC50 (μg·mL−1)**	**Antioxidant IC50 (μg·mL−1)**	**Antibacterial IC50 (μg·mL−1)** **E. coli** **S. aureus**	Cytotoxicity IC50 (μg·mL−1)	
PMC5592951		[illegible]	**Proposed EOROT** The suggested EOs presented in Table 1 are commonly characterized by their antibacterial effects, especially for certain types of bacteria listed in Table 2. The influence of the EO on inhibiting the bacteria activity can be measured by several methods such as the minimum bactericidal concentration (MBC) and minimum inhibitory concentration (MIC).8 The selected 24 EOs were tested on 17 types of bacteria, and the activities of the EOs against these bacteria were studied via the presence or the absence of inhibition zones according to MIC measure, as displayed in Table 2.8–26 The MIC can be defined as the lowest concentration of the EO at which the bacteria do not show visible growth after overnight incubation.8	EOs and their MIC percentage rate on the selected **bacteria**	**[EXTRACT(S)]** and their **[MEASUREMENT(S)] percentage rate** on the selected **[TARGET(S)]**	Abbreviations: EO, essential oil; MIC, minimum inhibitory concentration.									No.	EO/MIC	Bacteria			
PMC5597067	antiMicrobialMIC	Table 2 Antimicrobial activity of fingered citron peel oils. Sample; Antimicrobial Activity (MIC, μg/mL): *S. aureus* (G+)[a]; *B. cereus* (G+); *P. aeruginosa* (G−)[b]; *S. marcescens* (G−); *C. albicans* (Fungus); *A. niger* (Fungus) Vacuum distillation oil; 625; 313; 625; 1250; 2500; 156 Ultrafiltration oil; 156; 156; 39; 625; 1250; 20 Hydrodistillation oil; 1250; 1250; 1250; 1250; 2500; 625 [a] G+ is short for Gram-positive; [b] G− is short for Gram-negative.	3.2. Antimicrobial Activity of Fingered Citron Oils The MICs of three fingered citron oils against Gram-positive bacteria, Gram-negative bacteria, and fungi, are reported in Table 2. In particular, the ultrafiltration oil showed notable in vitro antimicrobial activity against *Staphylococcus aureus* (MIC = 156 μg/mL), *Bacillus cereus* (MIC = 156 μg/mL), *Pseudomonas aeruginosa* (MIC = 39 μg/mL), and *Aspergillus niger* (MIC = 20 μg/mL). The vacuum distillation oil was only marginally active against *Staphylococcus aureus* (MIC = 625 μg/mL), *Bacillus cereus* (MIC = 313 μg/mL), and *Pseudomonas aeruginosa* (MIC = 625 μg/mL), but was also strongly active against *Aspergillus niger* (MIC = 156 μg/mL).	Antimicrobial activity of fingered citron peel oils.	**[ACTIVITY(S)]** activity of **fingered citron peel oils**	a G+ is short for Gram-positive; b G− is short for Gram-negative.	Antimicrobial Activity (MIC, μg/mL)	μg/mL							Sample	Antimicrobial Activity (MIC, μg/mL)				
PMC5602841	antiBacterial_DD	Table 3 Distribution of the *Staphylococcus aureus* strains according to inhibition zone size against the essential oil *Plectranthus amboinicus*, carvacrol and tetracycline Inhibition halos interval (mm); Strings (n = 23): PAEO, Carvacrol, TCY; Milk (n = 12): PAEO, Carvacrol, TCY 16–20; 0; 0; 1; 4; 0; 1 21–25; 4; 2; 3; 3; 1; 11 26–30; 16; 12; 6; 5; 5; 0 31–35; 2; 4; 12; 0; 6; 0 36–40; 1; 3; 1; 0; 0; 0 41–42; 0; 2; 0; 0; 0; 0 *PAEO Plectranthus amboinicus* essential oil. *TCY* tetracycline 30 μg. *n* number of bacterial strains. *mm* millimeters	All strains (n = 35) of S. aureus were sensitive to PAEO and carvacrol with inhibition zones ranging from 16 to 38 mm and 23 to 42 mm, respectively (Table 3). The standard strain of S. aureus ATCC 6538 showed a inhibitory halo of 34 and 47, respectively, for PAEO and carvacrol.	Distribution of the Staphylococcus aureus strains according to inhibition zone size against the essential oil Plectranthus amboinicus, carvacrol and tetracycline	**Distribution of the [TARGET(S)]** strains according to **[METHOD(S)]** against the **[EXTRACT(S)] [PLANT(S)], [CONTROL(S)]**	PAEO Plectranthus amboinicus essential oil. TCY tetracycline 30 μg. n number of bacterial strains. mm millimeters	inhibition zone size Inhibition halos interval	(mm)				carvacrol tetracycline	Plectranthus is misspelled		Sample [Vacuum distillation oil, Ultrafiltration oil, Hydrodistillation oil]	Antimicrobial Activity (MIC, μg/mL)				
PMC5613177	Antibacterial_MIC_MBC	Table 6 Antibacterial activities (mg mL−1) of rosemary leaves essential oils in 2016 season following salinity (ppm) and salicylic acid (ppm) treatments Salinity (ppm); Salicylic acid (ppm); MIC/MBC against test bacteria: [illegible] 640: 0, 100, 300; 2,000: 0, 100, 300; 4,000: 0, 100, 300; Streptomycin; Ampicillin: [illegible]	Antibacterial activities of essential oils The antibacterial activities of 2016 season essential oils treatments were compared as shown in Table Table6. 6. There were increases in the antibacterial activities with increasing either salinity or SA treatment concentration. Essential oils MIC were in the range of 0.0001–0.011 mg mL−1, whereas the MBC were in the range of 0.0004–0.030 mg mL−1. The highest antibacterial activities were found against *S. aureus* compared to other bacteria. The essential oil of plants treated with 4,000 ppm NaCl and 300 ppm SA showed the highest antibacterial activity ranges with MIC and MBC of 0.0010–0.0001 and 0.0021–0.0004 mg mL−1, respectively. The antibacterial activities of rosemary essential oils were much higher than antibiotics.	Antibacterial activities (mg mL−1) of rosemary leaves essential oils in 2016 season following salinity (ppm) and salicylic acid (ppm) treatments.	**[ACTIVITY(S)]** activities **[UNIT(S)]** of **[PLANT(S)] [PART(S)] [EXTRACT(S)]** in **[YEAR/SEASON] following salinity (ppm) and salicylic acid (ppm) treatments.**		MIC MBC	ppm				salinity (ppm) and salicylic acid (ppm) treatments			**Salinity (ppm)**	**Salicylic acid (ppm)**	MIC MBC			
PMC5625792		Table 3 Minimum Inhibitory Concentration (MIC) and Minimum Bactericidal Concentration (MBC) of ROEO against *Staphylococcus* strains Strains; Antimicrobial activity: MIC (μl ml−1); MBC (μl ml−1) *Staphylococcus aureus* ATCC 9144; [1.25–2.5]; 5 *Staphylococcus epidermidis* S61; [0.312–0.625]; 2.5	Antibacterial activity The antibacterial activity of the ROEO was evaluated by the micro-dilution method against two Gram positive bacterial strains, *Staphylococcus aureus* and *Staphylococcus epidermidis* which represent species that are commonly found in multi-resistant infections. ROEO produced inhibitory and bactericidal effects against the tested strains. Minimum Inhibitory Concentration (MIC) and Minimum Bactericidal Concentration (MBC) values are summarized in Table 3. ROEO exhibited important antibacterial effect against the two bacteria. It inhibited *Staphylococcus aureus* ATCC 9144 and *Staphylococcus epidermidis* S61 with MIC values in the range of [1.25–2.5] and [0.312–0.625] μl ml−1, respectively, whereas bactericidal activities against *Staphylococcus aureus* and *Staphylococcus epidermidis* reached higher concentrations values in the order of 5 and 2.5 μl ml−1, respectively.	Minimum Inhibitory Concentration (MIC) and Minimum Bactericidal Concentration (MBC) of ROEO against *Staphylococcus* strains	**[MEASUREMENT(S)]** of **[PLANT(S)] [EXTRACT(S)]** against **[TARGET(S)]** strains		**MIC (μl ml−1)** **MBC (μl ml−1)**	**μl ml−1**							**Strains**	**MIC (μl ml−1)**				
PMC5653886		Table 3. Antibacterial activity of *M. officinalis and D. moldavica* Eos determined by agar disk diffusion assay and micro-well dilution assay Bacteria; MIC (mg mL−1): MEO, DEO; MBC (mg mL−1): MEO, DEO; Diameter of inhibition zone (mm): MEO (mg mL−1) 10, 15; DEO (mg mL−1) 10, 15; Vancomycin; Ampicillin *E. coli*; 2.00; 2.00; 2.00; 4.00; 9.74; 11.17; 8.21; 9.25; NG; 18.20 *S. typhimurium*; 1.00; 2.00; 2.00; 4.00; 8.87; 10.12; 8.55; 9.27; NG; 18.80 *S. aureus*; 0.12; 0.12; 0.25; 0.25; 10.60; 15.00; 9.53; 12.15; NG; NG *L. monocytogenes*; 1.00; 2.00; 1.00; 4.00; 10.45; 15.10; 9.11; 11.21; 26.30; 30.20 Open in a separate window MEO: *M. officinalis* Essential oil; DEO: *D. moldavica* Essential oil; NG: No growth.	**Antibacterial activity.** The results of *in vitro* antibacterial activity of *M. officinalis* and *D. moldavica* EOs against tested food borne bacteria strains were assessed by agar disk diffusion and broth micro-well dilution assays, (Table 3). The examined gram negative bacteria (*E. coli* and *S. typhimurium*) were more resistant to the antibacterial activity of the EOs than gram positive bacteria (*S. aureus* and *L. monocytogenes*). Among the tested bacterial strains by disc diffusion assay, *E. coli* and *S. aureus* showed the lowest and the highest sensitivity to the tested concentrations of the EOs, respectively.	Antibacterial activity of *M. officinalis and D. moldavica* Eos determined by agar disk diffusion assay and micro-well dilution assay	**[ACTIVITY(S)]** activity of **[PLANT(S)] [EXTRACT(S)]** determined by [METHOD(S)]	MEO: *M. officinalis* Essential oil; DEO: *D. moldavica* Essential oil; NG: No growth.	**MIC (mg mL-1)** **MBC (mg mL-1)** **Diameter of inhibition zone (mm)**					**Vancomycin** **Ampicillin**			**Bacteria**	**MIC (mg mL-1)**	**MBC (mg mL-1)**	**Diameter of inhibition zone (mm)**		
PMC5694611		Table 3 Antimicrobial activities for *R. chalepensis* three studied essential oils. Studied samples; *E. coli* (ATCC 25922); *P. aeruginosa* (ATCC 27853); *S. aureus* (ATCC 25923); MRSA; *C. albicans* *R. chalepensis* essential oil from Jenin; 12; 22; 10; 21; 2.75 *R. chalepensis* essential oil from Jerusalem; 0.75; 7; 2.5; 4; 3.5 *R. chalepensis* essential oilfrom Hebron; 1.5; 9; 3.25; 8; 4 Gentamycin (antibacterial reference); 0.5; 2; 0.5; 1.5; — Amphotericin B (antifungal reference); —; —; —; —; 2	3.2. Antimicrobial Activity The essential oil of *R. chalepensis* from Jerusalem, Hebron, and Jenin regions of Palestine extracted by microwave-ultrasonic method exhibited interesting potential bioactivity against the growth of all microbes examined in this study. However, the highest antibacterial activity (lowest MIC) against bacterial pathogen examined was for *R. chalepensis* essential oil from Jerusalem and was seen against *E. coli*, *P. aeruginosa*, *S. aureus*, and MRSA with MIC values of 0.75 mg/ml, 7 mg/ml, 2.5 mg/ml, and 4 mg/ml, respectively, in comparison with gentamycin which has MIC values of 0.5 mg/ml, 2 mg/ml, 0.5 mg/ml, and 1.5 mg/ml, respectively. On the other hand, the best antifungal activity against *C. albicans* was for *R. chalepensis* essential oil from Jenin region which showed MIC value close to 2.75 mg/ml in comparison with amphotericin B which had MIC value around 2 mg/ml. The antifungal and antibacterial activity for the three essential oils are shown in Table 3.	Antimicrobial activities for *R. chalepensis* three studied essential oils.	**[ACTIVITY(S)]** activities for **[PLANT(S)] three studied [EXTRACT(S)]**							Gentamycin (antibacterial reference) Amphotericin B (antifungal reference)			**Studied samples**	[strains]				
PMC5747963		Table 2 MIC values against *Staphylococcus aureus* and *Streptococcus pyogenes* for eucalyptus essential oil and NLC o/e Strain; MIC (mg/mL) Eucalyptus oil; *Staphylococcus aureus* ATCC 6538; 3 *Streptococcus pyogenes* ATCC 19615; 1.5 NLC o/e; *Staphylococcus aureus* ATCC 6538; 3 *Streptococcus pyogenes* ATCC 19615; 0.75 **Abbreviations:** ATCC, American Type Culture Collection; MIC, minimum inhibitory concentration; NLC, nanostructured lipid carriers; e, eucalyptus oil; o, olive oil.	The MIC values measured against *Staphylococcus aureus* and *Streptococcus pyogenes* for NLC o/e and for eucalyptus EO, at the same EO concentration, are reported in Table 2.	MIC values against *Staphylococcus aureus* and *Streptococcus pyogenes* for eucalyptus essential oil and NLC o/e	**[MEASUREMENT(S)] values** against **[TARGET(S)]** for **[PLANT(S)]** and **[CONTROL(S)]**	**Abbreviations:** ATCC, American Type Culture Collection; MIC, minimum inhibitory concentration; NLC, nanostructured lipid carriers; e, eucalyptus oil; o, olive oil.	**MIC (mg/mL)**	**mg/mL**							**Strain**	**MIC (mg/mL)**				

Article	Table type	Table Image	paragraphs just before the table (with title, if any)	Table_Caption	Keywords_Phrases	Table_Footnote_KEY_Abbreviations	Measurements	Measurement Unit	Method	Plant Material	Targets	Non-Plant Control Substances, Solvents, Media, Substrate	Notes	Table Type	Col1	Col2	Col3	Col4	Col5	Col6
PMC5778779			Seventeen compounds were identified in the EO of *C. citriodora* leaves (Table 2). The major constituents were α-citronellal (56.0%), α-citronellol (14.7%), citronellol acetate (12.3%), isopulegol (7.6%), eucalyptol (2.0%), citronellic acid (1.4%), caryophyllene oxide (1.2%), and (+)-rose oxide (1.2%). Antibacterial activity The MIC values of EO from *C. citriodora* leaves ranged from 0.06 mg/mL against *E. coli* to 0.20 mg/mL against *S. aureus*, and those values were lower than the MIC values of streptomycin (Table 2). Additionally, activity of this oil was comparable or even higher than reference antibiotic in case of *Agrobacterium tumefaciens* or *B. cereus*. EO from *C. macrocarpa* branchlets showed less activity against bacterial strains. The MIC values ranged from 0.07 mg/mL against *E. coli* to 0.31 mg/mL against *S. aureus*. The MBC values of EO from *C. citriodora* ranged from 0.12 mg/mL against *E. coli* to 0.41 mg/mL against *S. aureus*, whereas, the values were between 0.15 mg/mL (*E. coli*) and 0.63 mg/mL (*S. aureus*) using EO from *C. macrocarpa* branchlets. The EO of *C. citriodora* and *C. macrocarpa* showed noticeable activity against phytopathogenic bacteria including *Pectobacterium atrosepticum*, *P. carotovorum*, and *Dickeya solani*, which causes many diseases in potato production, such as the blackleg in the field and soft rot during storage. Furthermore, all MIC values reported against the potato pathogenic bacteria were lower than those reported for the negative control, streptomycin.	Minimum inhibitory (MIC) and bactericidal concentration (MBC) of the essential oil (mg/ mL) of *Corymbia citriodora* leaves Hook and *C. macrocarpa* branchlets	**[MEASUREMENT(S)]** of the **[EXTRACT(S)] [UNIT(S)]** of **[PLANT(S)] [PART(S)]**	Means with the same letters within the same column are not significantly different ($p < 0.05$)	MIC MBC	mg/mL				**Streptomycin**			**Bacterial strains**	**MIC**	**MBC**			
PMC5778779			Antifungal activity The antifungal activities of the EOs against several fungi are shown in Table 3. The MIC values of the EO from *C. citriodora* ranged from 0.11 mg/mL (*A. niger*) to 0.52 mg/mL (*P. funiculosum*), while the MFC values ranged from 0.25 mg/mL (*A. niger*) to 0.95 mg/mL (*P. funiculosum*). The MIC values of the EO from *C. macrocarpa* ranging from 0.29 mg/mL (*P. ochrochloron*) to 3.21 mg/mL (*C. albicans*), and the MFC values ranged from 0.53 mg/mL (*P. ochrochloron*) to > 5 mg/mL (*C. albicans*). It was noted that the MIC and MFC values of EOs against *P. funiculosum* were lower than those obtained from KTZ. In addition, the EO from *C. citriodora* leaves showed more potency than the EO of *C. macrocarpa* needles against the tested fungi.	Minimum inhibitory concentration (MIC) and fungicidal concentration (MFC) of different leaf extracts (mg/mL) of *Corymbia citriodora* and *Cupress us macrocarpa*	**[MEASUREMENT(S)]** of different **[PART(S)]** extracts **[EXTRACT(S)] [UNIT(S)]** of **[PLANT(S)]**	*N.D.* Not detected *KTZ* Ketoconazole Means with the same letters within the same column are not significantly different ($p < 0.05$)	MIC MFC	mg/mL				*KTZ* Ketoconazol e			**Fungal strains**	**MIC**	MFC			
PMC5788217	antiBact erial_MIC		Antibacterial properties of ZEO and SNP The inhibitory effects of ZEO and SNP alone and in combination against *Staph. aureus* and *Salm.* Typhimurium were investigated using microtiter plate assay. For *Staph. aureus*, the MIC values of ZEO and SNP were 1250 and 25 μg/mL and for *Salm.* Typhimurium the values were 2500 and 25 μg/mL, respectively. In all cases, MBC values were similar to MICs. **The ZEO was found to be more effective on gram-positive than gram-negative bacteria** whereas SNP displayed similar antibacterial activity on both bacteria. The MICs for SNP - ZEO combination were 0.78 and 12.5 μg/ mL against *Staph. aureus* and *Salm.* Typhimurium, respectively. ZEO-SNP combination inhibited *S. aureus* and *Salm.* Typhimurium at 625 μg/ mL. Based on the FICI scale (Table 2), **the combination displayed a synergistic action on *Staph. aureus* (FICI=0.81) and *Salm.* Typhimurium (FICI= 0.75).**	**Survival population (log CFU/ mL) of *Staph. aureus* and *Salm.* Ty phimurium treated with ZEO and SNP alone and in combination during 15 min contact time at room temperature.**	**Survival population (log CFU/ mL) of [TARGET(S)] treated with ZEO and SNP alone and in combination during 15 min contact time at room temperature.**	*Initial bacterial counts: 106 CFU mL-1. Different letters for each column of indicate a statistically significant difference ($P < 0.05$). **Zataria multiflora essential oil (ZEO) and silver nanoparticle (SNP)**	**Minimum Inhibitory Concentration (MIC)** Survival population **Optimal Inhibitory Combination (OIC)** the combination displayed a **synergistic action** on *Staph. aureus* (**FICI=0.81**) and *Salm.* Typhimurium (**FICI= 0.75**).	(log CFU/ mL) μg/ mL	microtiter plate assay determined according to **fractional inhibitory concentration (FIC) method.** Biofilm removal potential and leakage pattern of 260-nm absorbing material from the bacterial cell	Zataria multiflora essential oil (ZEO)		Colloid Nanosilver and silver nanoparticle (SNP)	the combination displayed a **synergistic action** on Staph. aureus (FICI=0.81) and Salm. Typhimurium (FICI= 0.75). EO names were abbreviated to their first letter followed by "EO"		Microorganism*	Alone at MIC concentration (ZEO, SNP) (ZEO SNP)	Alone at MIC concentration (OIC 1/2OIC 1/4OIC)			
PMC5795983	antifunga l MIC, MFC		**2.4. Antifungal Activity** As shown in Table 3, antifungal activity was not observed against Candida spp., Cryptococcus neoformans and Microsporum canis. A weak action against Trichophyton mentagrophytes was found, and Paracoccidioides brasiliensis demonstrated a moderate degree of sensitivity to the essential oil based on the minimal inhibitory concentration (MIC) classification adopted by Holetz et al. (2002) [44].	Minimal inhibitory concentration (μg·mL−1) for tested fungi.	**[MEASUREMENT(S)] [UNIT(S)]** for tested fungi.	Six replicates; amphotericin B: positive control. Different letters in a column represent significant differences in the minimum inhibitory concentration between microorganism for the same treatment; * differences when minimal inhibitory concentration value is compared to positive control; p < 0.05.	Minimal inhibitory concentration (μg·mL−1)	(μg·mL−1)							Fungi Strains	Fungi				
PMC5795983	AntiBact erial_MIC		**2.5. Antibacterial Activity** Antibacterial activity of the essential oil from leaves of B. salicifolius was determined against some microorganisms of clinical importance, as shown in Table 4.	Minimal inhibitory concentration 90% (μg·mL−1) for tested bacteria.	**[MEASUREMENT(S)]** 90% **[UNIT(S)]** for tested **[TARGET(S)]**.	n = 7:1 ATCC and 6 clinical isolates; MRSA: methicillin-resistant Staphylococcus aureus; MSSA: methicillin-sensitive Staphylococcus aureus. Polymyxin B and cephalothin: positive controls. Different letters in a column represent significant differences in the minimum inhibitory concentration between microorganism for the same treatment; * differences when MIC value is compared to its respective positive control; p < 0.05.									Gram Staining Reaction					
PMC5806308	AntiMicr obial_MI C		**Minimal inhibitory concentration** The results of the MIC test (Table 1) suggested that the fungi Candida albicans was the most susceptible microorganism to the ethanolic and aqueous extracts. The essential oil exerted the least antimicrobial effect which was indicated through displaying the highest value of MIC in all tested microorganisms. The ethanolic and aqueous extracts showed the same antimicrobial effect against Staphylococcus aureus, Bacillus subtilis, and Pseudomonas aeruginosa, microorganisms with different Gram, and therefore different cell wall chemistry. The positive controls, amikacin, and nystatin showed an antimicrobial effect at 4 mg/L and 2 mg/L respectively, because the wells of the plate, where the antibiotics were deposited with the different microorganisms, did not present a color change when the solution of iodonitrotetrazolium chloride was added during the MIC assay.	Antimicrobial activity of essential oil and extracts of Ocimum micranthum Willd leaves	**[ACTIVITY(S)]** activity of **[EXTRACT(S)]** and extracts of **[PLANT(S)]** Willd **[PART(S)]**					Willd leaves (also... Wild is spelled wrong, so we may need to spell check before extracting.)			EXTRAC TYPES INCLUDE: Ethanolic Aqueous Essential oil **(also... Wild is spelled wrong, so we may need to spell check before extracting.)**		Plant	Extract	Minimal Inhibitory Concentration (μL/mL)			
PMC5830750	antiBact erial_MIC _DD		The antimicrobial activities of flower, leaf and root oils of *E. ilicifolius* were assayed against six Gram-positive and Gram-negative bacteria and results are showed in table 2. The flower, root and leaf oils have significant activity against all Gram-positive and Gram-negative bacteria. *Staphylococcus aureus* and *S. epidermidis* were the more susceptible to flower oil than other bacteria. Leaf oil showed a stronger antibacterial effect on *S. aureus*, *E. faecalis*, *P. mirabilis*, *E. coli* and *P. aeruginosa*, and a moderate activity against *S. epidermidis*, while the antibacterial effect was higher against *E. faecalis* and *P. mirabilis* than *S. epidermidis*, *P. mirabilis*, *E. coli* and *P. aeruginosa* in root oil. The present study shows that there is positive correlation between the chemical content of the oil and their antibacterial activities.	Antibacterial activity of flower, leaf and root oils of *Echinops ilicifolius*. IZ: inhibition zone (mm); MIC: minimum inhibitory concentration (μg ml−1); values were expressed as mean± s.d. (*n*=3), values in the same line with different superscripts	**[ACTIVITY(S)]** activity of **[PART(S)] [EXTRACT(S)]** of **[PLANT(S)]**.		**MIC (μg ml−1)** **IZ 50 μl**	IZ: inhibition zone (mm); MIC: minimum inhibitory concentration (μg ml−1); values were expressed as mean±s.d. (*n* =3), values in the same line with different superscripts (a–		Flower Oil Leaf Oil Root Oil	**bacteria**	**ofloxacin**			**bacteria**	**Gram +/-**	**MIC (μg ml−1)**	**IZ 50 μl**	**IZ 100 μl**	
PMC5846372	Antimicr obial		3.4. Antimicrobial Bioassay According to in vitro antimicrobial tests (Table 4) against two Gram-positive bacteria (*S. aureus* and *S. epidermidis*) and four Gram-negative ones (*E. coli*, *E. cloacae*, *K. pneumoniae*, and *P. aeruginosa*), as well as against oral pathogens (*S. mutans* and *S. viridans*) and three human pathogenic fungi (*Candida albicans*, *C. tropicalis*, and *C. glabrata*), the herbal teas exhibited a broad spectrum of strong antimicrobial activity, while KN3 herbal tea appeared to be the most active against all tested microorganisms, which can be explained by the high percentage of cinnamic aldehyde and β-caryophyllene that appears in herbal tea of KN3 as shown in Table 1.	Antimicrobial activity of herbal teas and methanol extracts.	Antimicrobial activity of herbal teas and methanol extracts.					herbal teas and methanol extracts.					**[plant] Samples**	Organisms				
PMC5848570										Chemical composition and antibacterial activity of oils from *Chrysicthys nigrodigitatus* and *Hepsetus odoe*, **two freshwater fishes** from Yabassi, Cameroon			This paper is not about Plants or EOs							
PMC5849899	antiBact erial_MIC		3.2. **Inhibitory potential** of EOs in PDB culture medium Table 3 shows the **inhibitory effects** of EOs against *A. flavus* growth and aflatoxin B1 production by *A. flavus* in the PDB medium. As we expected, according to the obtained data, clove EO showed higher inhibitory effect than thyme EO. In this regard, clove EO showed inhibitory effect of 100% against *A. flavus* growth at concentration of 300 ppm, but for thyme EO the strongest inhibition effect (75%) was seen at concentration of 400 ppm. In a similar study, Razeghi−Abyaneh et al. investigated and confirmed the antimicrobial effects of thymol and carvacrol in PDB medium against *A. flavus* growth.	Effect of clove EO and thyme EO on Aspergillus flavus growth in PDB medium culture	Effect of **[PLANT(S)] [EXTRACT(S)]** on **[TARGET(S)]** growth in **[SUBSTRATE] PDB medium culture**	In each column different superscript letters indicate significant differences (p < .05). EO, essential oil; **PDB**, potato dextrose broth.	Hyphae weight (mg) concentration of [x] ppm inhibition effect ([x]%) Inhibition (%)				**hypha** **Hyphae** A hypha is a long, branching filamentous structure of a **fungus, oomycete, or actinobacterium**. In most fungi, hyphae are the main mode of vegetative growth	PDB, potato dextrose broth.		Titration	EO concentration (ppm)	Hyphae weight (mg)	Inhibition (%)			
PMC5849899	antiBact erial_MIC		3.3. Inhibitory potential of EOs in Iranian white cheese as a food model Results related to the inhibition effects of thyme and clove EOs in Iranian white cheese are presented in Table 4. By the end of the 40th day of storage, thyme EO showed the inhibitory potential of 86.81% at 200 ppm concentration against *A. flavus* growth and the highest inhibitory effect of thyme EO was recorded at 600 ppm, which was equal to 91.3% of inhibition. Moreover, because of high mold inhibitory potential of clove EO, which was evidenced in previous experiments, the essence showed 85.3%, 95%, and 100% of inhibition against *A. flavus* at concentrations of 50, 100, and 150 ppm, respectively. Similar to the results of the PDA and PDB medium, in Iranian white cheese the inhibitory effect of the EOs against *A. flavus* growth was higher than their inhibitory effect against aflatoxin B1 production. In the case of clove EO, 50 and 100 ppm of the essence could eradicate the aflatoxin B1 after 20 and 10 days of storage, respectively, and by introducing 150 ppm of the clove EO no aflatoxin were found during any time of storage.	Effect of clove EO and thyme EO on *Aspergillus flavus* growth and aflatoxin B1 production by *Aspergillus flavus* in Iranian white cheese	Effect of **[PLANT(S)] [EXTRACT(S)]** on **[TARGET]** and **[TARGET BYPRODUCT]** and **[CONTROL SUBSTANCE]** by **[TARGET]** in **[SUBSTRATE]**	In each column different superscript letters indicate significant differences ($p < .05$). EO, essential oil.	Time (day) EO concentration (ppm) A. flavus growth (cfu/ ml × 104) **aflatoxin B1 production** Aflatoxin B1 concentration (ppm)			[PLANT NAME] EO	Aspergillus flavus growth and aflatoxin B1 production	Iranian white cheese	Article includes this Calculation: Inhibition percentage(%)=((R0−R1)/R0))×100 where R0: radius of fungal hyphae growth in the positive control sample, R1: radius of fungal hyphae growth in the test sample.		Time (day)	**EO concentration (ppm)**	***A. flavus* growth (cfu/ml × 104)**	**Aflatoxin B1 concentration (ppm)**		
PMC5849928			3.2. Minimum inhibitory concentration of essential oil One of the criteria used by most researchers to measure the antibacterial activity of antimicrobial agents is to determine the minimum inhibitory concentration and the minimum concentration of fecundity. Due to the fact that each antimicrobial agent has different effects on microorganisms, this study investigated the AEO on gram-negative microorganisms such as *S. typhimurium* and *E. coli* and gram-positive bacteria like *S. aureus* using microdilution method. According to the results (Table 2), the highest MIC values were observed in *Salmonella typhimurium* and the lowest values were found in *S. aureus* ($p < .05$). Several reports have shown that gram-positive bacteria are more susceptible to antibacterial compounds than gram-negative bacteria. The resistance of gram-negative bacteria against antibacterial agents with the hydrophilic surface of the outer membrane of bacteria that is rich in lipopolysaccharide molecules and creates a buffer against the penetration of different antibiotic molecules, as well as with perivascular enzymes that can	Minimum inhibitory concentration of anise essential oil (AEO)	**[MEASUREMENT(S)]** of **[PLANT(S)] [EXTRACT(S)]** [PLANT/EXTRACT ABBREVIATION(S)]	Significant differences in a same column are shown by different letters ($p < .05$). Values are means ± SD ($n = 3$). MIC, minimum growth inhibitor concentration.	**MIC (ppm)**	**ppm**							**Treatment** **[oil used]**	**MIC (ppm)**				
PMC5871051	Antimicr obial		**Results** In the present study, using cultural techniques, 2 of 106 samples (1.88%) were positive for Listeria strains. No Listeria was isolated from fresh fish samples. In contrast, 2 shrimp (5%) samples were contaminated with L monocytogenes (2.5%) and L grayi (2.5%). The resistance pattern of Listeria spp isolates to 16 antibiotics tested in this study is shown in Table 1. The 2 isolates (100%) were multidrug resistant. In addition, 2 isolates were susceptible to trimethoprim/sulfamethoxazole and ciprofloxacin. The L monocytogenes was more sensitive to antibiotics than L grayi.	Antimicrobial Resistance of Listeria spp Isolated From Seafood in Kashan, Iran.	**[ACTIVITY(S)]** Resistance of **[TARGET(S)]** Isolated From **[SUBSTRATE(S)]** in **[COLLECTION LOCATION]**.	Abbreviations: R, resistant; I, intermediate; S, susceptible.									**Antimicrobials**	Listeria monocytogenes	Listeria grayi			

Article	Table type	Table Image	paragraphs just before the table (with title, if any)	Table_Caption	Keywords_Phrases	Table_Footnote_KEY_Abbreviations	Measurements	Measurement Unit	Method	Plant Material	Targets	Non-Plant Control Substances, Solvents, Media, Substrate	Notes	Table Type	Col1	Col2	Col3	Col4	Col5	Col6
PMC5871051	Bactericidal	 Table 3. Minimum Inhibitory Concentration (MIC) and Minimum Bactericidal Concentration (MBC) of the Bunium persicum, Eucalyptus globulus, and Rose Water Against Listeria spp Isolated From Seafood.	The results related to the MIC and MBC of the essential oils and extracts by microdilution method are given in Table 3. The essential oil of E globulus showed consistently strong antimicrobial activity against L monocytogenes and L grayi, while rose water showed no antimicrobial activity against any of the tested bacterial strains. The essential oils generally exhibited a higher antimicrobial spectrum than extracts. Interestingly, L monocytogenes was more sensitive to essential oils and extracts than L grayi.	Minimum Inhibitory Concentration (MIC) and Minimum Bactericidal Concentration (MBC) of the Bunium persicum, Eucalyptus globulus, and Rose Water Against Listeria spp Isolated From Seafood.	**[MEASUREMENT(S)]** and **[MEASUREMENT(S)]** of the **[PLANT(S)]** Isolated From **[SUBSTRATE]**.	Abbreviations: E, ethanolic extract; EO, essential oil; NE, no effect.	MIC (mg/mL) MBC (mg/mL)	(mg/mL)							**Name of Medicinal Plants**	Listeria monocytogenes	Listeria grayi			
PMC5871051		 Table 4. Effects of Bunium persicum, Eucalyptus globulus, and Rose Water in MIC Concentrations on Cell Constituents' Release of Listeria spp Isolated From Seafood.*	Table 4 shows the results when *Listeria* strains were treated with MIC concentration of essential oils and extracts for 4 hours, respectively. The results showed that after adding the *B persicum* and *E globulus* essential oils to bacteria, the cell components' release increased significantly. Compared with control and the cell components in suspensions treated with MIC concentration of *B persicum* and *E globulus* essential oils for *L monocytogenes* increased by 2.52 and 2.86 times, respectively and they increased by 1.52 and 1.67 times, respectively, for *L grayi*.	Effects of Bunium persicum, Eucalyptus globulus, and Rose Water in MIC Concentrations on Cell Constituents' Release of Listeria spp Isolated From Seafood.*	Effects of **[PLANT(S)] [EXTRACT(S)]** in MIC Concentrations on **[TARGET-RELEASED BIPRODUCTS]** of **[TARGET SPECIES]** Isolated From **[SUBSTRATE]**.	E, ethanolic extract; EO: essential oil; ND, not detected; OD260 nm, optical density at 260 nm. *Different superscript letters a, b, c, and d in the column indicate significant differences (P = .00).	OD260 nm, optical density at 260 nm	nm			**[TARGET-RELEASED BIPRODUCTS]** of **[TARGET SPECIES]** Isolated From **[SUBSTRATE]**.				**Medicinal Plants**	EOs				
PMC5871051	antiBacterial_MIC	 Table 4. Effects of Bunium persicum, Eucalyptus globulus, and Rose Water in MIC Concentrations on Cell Constituents' Release of Listeria spp Isolated From Seafood.*	Table 4 shows the results when *Listeria* strains were treated with MIC concentration of essential oils and extracts for 4 hours, respectively. The results showed that after adding the *B persicum* and *E globulus* essential oils to bacteria, the cell components' release increased significantly. Compared with control and the cell components in suspensions treated with MIC concentration of *B persicum* and *E globulus* essential oils for *L monocytogenes* increased by 2.52 and 2.86 times, respectively and they increased by 1.52 and 1.67 times, respectively, for *L grayi*.	Effects of *Bunium persicum*, *Eucalyptus globulus*, and Rose Water in MIC Concentrations on Cell Constituents' Release of *Listeria* spp Isolated From Seafood.*	Effect of **[PLANT(S)] [EXTRACT(S)]** in **[MEASUREMENT] ON[TARGET BYPRODUCT] release of [TARGET ORGANISM]** isolated from **[SUBSTRATE]**	E, ethanolic extract; EO: essential oil; ND, not detected; OD260 nm, optical density at 260 nm. *Different superscript letters a, b, c, and d in the column indicate significant differences (P = .00).									Medicinal Plants	Bunium persicum EO	Eucalyptus globulus EO	Rose water	Bunium persicum E	Eucalyptus globulus E
PMC5871294		 Table 2. Antibacterial Activity (MIC and MBC) of Essential Oil Distilled From Salvia mirzayanii.	The antibacterial activities of *Salvia mirzayanii* essential oil are shown in Table 2. Essential oils inhibited the growth of all gram-positive bacteria at the concentrations of 0.03 to 0.5 µL/mL. The essential oils exhibited antibacterial activity (MBC) against all the above-mentioned gram-positive bacteria at concentrations ranging from 0.062 to 32 µL/mL. The MBC of *Streptococcus pyogenes* ATCC 8668 was only in concentrations >0.031 µL/mL.	Antibacterial Activity (MIC and MBC) of Essential Oil Distilled From *Salvia mirzayanii*.	**[ACTIVITY(S)]** Activity **[MEASUREMENT(S)]** of **[EXTRACT(S)]** **[EXTRACTION METHOD(S)]** From **[PLANT(S)]**	Abbreviations: GM, geometric mean; MIC, minimum inhibitory concentration; MBC, minimum bactericidal concentration	GM, geometric mean MIC, minimum inhibitory concentration MBC, minimum bactericidal concentration	**µL/mL (Range)**							**Bacteria (Number of Strains)**	**MIC95, GM µL/mL (Range)**	**MBC, GM µL/mL (Range)**			
PMC5871294		 Table 3. Antifungal Activity (MIC and MFC) of Essential Oil From Salvia mirzayanii.	The antifungal activities of *Salvia mirzayanii* essential oil against fungi are exhibited in Table 3. For the clinical and standard tested yeasts MIC50 and MIC95 for the *Salvia mirzayanii* essential oil were in the range of 0.03 to 1 and 0.06 to 2 µL/mL, respectively, with *Candida glabrata* and *Candida dubliniensis* demonstrating the lowest MIC50 and MIC95 values.	Antifungal Activity (MIC and MFC) of Essential Oil From *Salvia mirzayanii*.	**[ACTIVITY(S)]** Activity **[MEASUREMENT(S)]** of **[EXTRACT(S)]** From **[PLANT(S)]**	Abbreviations: MIC, minimum inhibitory concentration; MFC, minimum fungicidal concentration.	**MIC50 (µL/mL)** **MIC95 (µL/mL)** **MIC95 (µL/mL)**	**µL/mL**				**Fluconazol** **Itraconazol**			**Code**	**Species**	**MIC50 (µL/mL)**	**MIC95 (µL/mL)**	**MFC (µL/mL)**	
PMC5871294		 Table 4. Antifungal Activity of Essential Oil of Salvia mirzayanii against Azole-Sensitive and Azole-Resistant Candida.	According to Table 4, *Salvia mirzayanii* essential oil at concentrations of 0.03 to 1 µL/mL, inhibited the growth of about half of the azole-sensitive *Candida*; in addition, MIC50 value for the essential oil antifungal activity against azole-resistant *Candida* was 0.12 to 1 µL/mL.	Antifungal Activity of Essential Oil of *Salvia mirzayanii* against Azole-Sensitive and Azole-Resistant *Candida*.	**[ACTIVITY(S)]** Activity of [EXTRACT(S)] of [PLANT(S)] against Azole-Sensitive and Azole-Resistant *[TARGET(S)]*.	Abbreviations: GM, geometric mean; MIC, minimum inhibitory concentration; MFC, minimum fungicidal concentration.									**Species (Number)**	**MIC50, GM µL/mL (Range)**	**MIC95, GM µL/mL (Range)**	**MFC, GM µL/mL (Range)**		
PMC5921405		**Image instead of a table**																		
PMC5933022		 Table 3 Determination of minimum inhibitory concentration (MIC) of the oleogels containing different concentrations of thyme essential oil.	3.3. Antimicrobial Test The antimicrobial assay of the oleogels with essential oil of thyme was performed against *Candida albicans*. The minimum inhibitory concentration was determined after incubating the oleogels with different concentrations of thymol in Petri dishes. The results are listed in Table 3. The results suggest that the oleogel may be tried as matrices for drug delivery or can be alternative preparation for the chemical drugs.	Determination of minimum inhibitory concentration (MIC) of the oleogels containing different concentrations of thyme essential oil.	Determination of **[MEASUREMENT(S)]** of the oleogels containing different concentrations of **[PLANT(S)] [EXTRACT(S)]**		MIC	%					CHECK THE UNITS		**Essential oil of thyme concentration in oleogels, %**	**Effectiveness against *Candide albicans***				
PMC5958151	antiBacterial_MIC	 Table 3 Minimal inhibitory concentration (MIC) (µl/ml) of tested essential oils	Susceptibility of *Prototheca zopfii* Isolates to Tested Essential Oils All tested strains were sensitive to thyme, marjoram and oregano oils and insensible to peppermint and bear garlic oils. The marjoram oil was the most effective inhibitor of the tested strains of *P. zopfii*, with MIC values ranging from 0.25 to 0.5 µl/ml, while the least effective was oregano, with MIC values of 0.5 to 1 µl/ml. For thyme oil, the MIC values ranged from 0.25 to 1 µl/ml (Table 3).	Minimal inhibitory concentration (MIC) (µl/ml) of tested essential oils	**[MEASUREMENT(S)] [UNIT(S)]** of tested **[EXTRACT(S)] [MEASUREMENT(S)] [UNIT]** of tested **[EXTRACT(S)]**	R, resistant	MIC	(µl/ml)			Same species, different Strains				**No.**	**Species**	**Strain number**	**Clinical material**	**Minimal inhibitory concentration MIC (µl/ml) of tested essential oils** (Thyme Oregano Marjoram Wild garlic Mint)	
PMC5960548		 Table 3 Antimicrobial activity of the essential oil of Melaleuca alternifolia.	3.3. Antibacterial Activity *E. coli, S. aureus, P. aeruginosa, P. italicum Wehmer, and P. digitatum Sacc.* are different types of microorganisms. *E. coli, S. aureus,* and *P. aeruginosa* are pathogenic bacteria [24], whereas *P. italicum Wehmer* and *P. digitatum Sacc.* are fungi [25]. Because these organisms infect, damage, and destroy material used in manufacturing goods or infect the goods produced; these microorganisms increase economic costs in various industries, including medicinal, cosmetic, agriculture, and food industries. Thus, the antibacterial activity of the essential oil from *M. alternifolia* was investigated with three different methods: the antimicrobial screening method and the MIC and MBC assays. The results presented in Table 3 clearly show that the essential oil of *M. alternifolia* displayed significant antimicrobial activity against all microorganisms tested. The Gram-positive bacteria were more sensitive to the essential oil than Gram-negative bacteria and fungi. *E. coli* had the lowest MIC (2 mg/ml). These data are consistent with previous observations that *Melaleuca alternifolia* essential oil possesses antibacterial and antifungal activity [11]. According to Cox et al. (2000), the antimicrobial activity of the *M. alternifolia* terpenes is associated with their strong hydrophobicity. Here, the hydrophobic terpenes interact strongly with the membrane lipids of the pathogenic microorganisms, which affect the permeability of the membrane [10]. Among the main consequences of membrane permeability are (i) modification of the proton-motive force, leading to a deficit in the production of cellular energy caused by the decrease in ATP generation, and (ii) cellular lyses due to leakage or coagulation of the cytoplasm [26, 27]. The compound terpinene-4-ol, also identified amongst the main constituents of the Iranian Cymbopogon Olivieri essential oil, has been implicated in the antimicrobial activity against Gram-positive bacteria, Gram-negative bacteria, and the yeast *Candida albicans* [28].	Antimicrobial activity of the essential oil of *Melaleuca alternifolia*.	**[ACTIVITY(S)]** of **[EXTRACT(S)]** of **[PLANT(S)]** against	DD, diameter of zone of inhibition (mm) including disc diameter of 6 mm.	**DD (mm)** **MIC (mg/mL)** **MBC (mg/mL)**								**Microorganisms**	**DD (mm)**	**MIC (mg/mL)**	**MBC (mg/mL)**		
PMC6011056		 Table 2 Minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC) values of essential oils from C. zeylanicum and C. cassia stems, (E)-cinnamaldehyde and oxacillin (mg/ml) on bacteria.	3.2. Antimicrobial Activity of *C. zeylanicum* and *C. cassia* Bark Essential Oils and (E)-Cinnamaldehyde on Bacteria Essential oils and (E)-cinnamaldehyde inhibited the growth of all bacteria assayed in this study in planktonic form, the antimicrobial activity data for which are shown in Table 2.	Minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC) values of essential oils from *C. zeylanicum* and *C. cassia* stems, (E)-cinnamaldehyde and oxacillin (mg/ml) on bacteria.	**[MEASUREMENT(S)]** values of **[EXTRACT(S)]** from ***[PLANT(S)]*** **[PART(S)], [CONTROL(S)] [UNIT(S)]** on **[TARGET(S)].**		**MIC** **MBC**	mg/ml			bacteria	**(E)-cinnamaldehyde** **Oxacillin**			**Microorganisms**	**MIC**	**MBC**			

Article	Table type	Table Image	paragraphs just before the table (with title, if any)	Table_Caption	Keywords_Phrases	Table_Footnote_KEY_Abbreviations	Measurements	Measurement Unit	Method	Plant Material	Targets	Non-Plant Control Substances, Solvents, Media, Substrate	Notes	Table Type	Col1	Col2	Col3	Col4	Col5	Col6
PMC6011056		Table 3 Minimum concentration of essencial oil from *C. cassia* (EOCc) and *C. zeylanicum* (EOCz) stems, (E)-cinnamaldehyde and oxacillin (mg/ml) reduce biofilm biomass by 100% in comparison to normal biofilm growth. **Substances** **Microorganisms EOCc EOCz (E)-cinnamaldehyde Oxacillin** *S. aureus* 0.25 0.25 0.25 0.01 *S. epidermidis* 0.50 0.50 0.25 0.01 *S. pyogenes* 0.06 0.12 0.50 0.01 *P. aeruginosa* 0.06 0.12 0.25 0.01 *E. coli* 0.12 0.50 0.25 0.01	3.3. Antibiofilm Activity of the Essential Oils from the Trunk Bark of *C. zeylanicum* and *C. cassia* and Cinnamaldehyde 3.3.1. Quantification of Biofilm Biomass and Cell Viability in Biofilms The biofilm biomass quantification data are shown in Table 3.	Minimum concentration of essencial oil from *C. cassia* (EOCc) and *C. zeylanicum* (EOCz) stems, (E)-cinnamaldehyde and oxacillin (mg/ml) reduce biofilm biomass by 100% in comparison to normal biofilm growth.	Minimum concentration of **[EXTRACT(S)]** from **[PLANT(S)] [PART(S)], [CONTROL(S)] [UNIT(S)]** reduce **[TARGET(S)] by 100% in comparison to normal [TARGET(S)]** growth.		MIC					**(E)-cinnamaldehyde** **Oxacillin**			**Microorganisms**	**Substances**				
PMC6015887		Table 2 MIC and MFC of CEO against *C. acutatum*. **Concentration of CEO (µL/mL) MIC MFC** 0 ++++ ++++ 0.075 +++ +++ 0.100 +++ +++ 0.125 ++ ++ 0.150 ++ ++ 0.175 + + 0.200 – – 0.225 – – *Growth of C. acutatum in the presence of CEO. Medium used: PDA. Inoculating in dark at 25°C. Growth: ++++, very good; +++, good; ++, fair; +, little; -, no growth. Values are mean (n = 3).*	Effect of CEO on *C. acutatum in Vitro* We evaluated the antifungal activity of CEO *in vitro* against *C. acutatum*. The antifungal activity was mainly determined by inhibition of mycelial growth and spore germination of *C. acutatum*. The mycelial growth of *C. acutatum* was sensitive to CEO (**Figure** **Figure2A** 2A). The mycelial growth of *C. acutatum* (CEO-treated group) was reduced during incubation compared with the untreated group, with the greater inhibitory at the higher concentration ($p < 0.05$). The mycelial growth of *C. acutatum* was completely inhibited by CEO at the concentration of 0.2 µL/mL. The efficacies of CEO on the spore germination of *C. acutatum* were shown in **Figure** **Figure2B** 2B. The different concentrations of CEO had a significant inhibitory effect on spore germination (**Figure** **Figure2B** 2B, $p < 0.05$). Observations showed an inhibition on the spore germination of *C. acutatum* within the range of 0.075–0.150 µL/mL. Results indicated that the spore germination was reduced with the increasing CEO concentrations. CEO could	MIC and MFC of CEO against *C. acutatum.*	**[MEASUREMENT(S)]** of **[PLANT(S)] [EXTRACT(S)]** against **[TARGET(S)]**	*owth of C. acutatum in the presence of CEO. Medium used: PDA. Inoculating in dark at 25°C. Growth: ++++, very good; +++, good; ++, fair; +, little; -, no growth. Values are mean (n = 3).*									**Concentration of CEO (µL/mL)**	**MIC**	**MFC**			