Here is a list of naturally occurring extracts and herbs that have successfully treated *Candida* infections, based on the provided sources:

I. Herbal Extracts and Whole Plants

• **Garlic (*Allium sativum*)**

◦ Highly effective against multidrug-resistant *Candida* isolates (*C. albicans*, *C. tropicalis*, *C. krusei*, *C. glabrata*)12.

◦ Proved more effective than nystatin, gentian violet, or methylene blue against pathogenic yeasts, especially *C. albicans*3.

◦ The ethanolic extract was the most effective among several tested plant extracts against multidrug-resistant *Candida* species2.

◦ Garlic tablets (*Garcin*) showed similar efficacy to fluconazole in treating *Candida* vaginitis in women45.

◦ An in vitro study found its essential oil more effective than fluconazole in preventing the growth of planktonic and biofilm forms of *C. albicans* extracts from dentures67.

◦ Can be a valuable component in combination therapies due to synergistic potential8....

• **Licorice (*Glycyrrhiza glabra* L.)**

◦ Remarkable anti-*Candida* effect, including against cells in suspension and biofilms15....

◦ Its phenolic compounds, particularly flavones and flavanones, are believed responsible for its effects15.

◦ One study found its extract to have stronger inhibitory effect and better antifungal activity than fluconazole and itraconazole (though lesser efficacy than clotrimazole, not statistically significant)19.

◦ Can be used as a therapeutic substitute for oral candidiasis19.

• **Curcumin (*Curcuma longa*)**

◦ Showed potent antifungal activity in human studies (oral, vulvovaginal, topical, photodynamic therapy for *C. albicans*) and extensive *in vitro*/*animal* research13....

◦ Inhibited initial cell adhesion, biofilm growth, and gene expression21.

◦ Inhibited adhesion capability of cells and demonstrated anti-biofilm activity against *C. albicans*22....

◦ Curcumin-quercetin nanovesicles showed strong activity against fluconazole-resistant *Candida* isolates2728.

◦ Effective in mouthwash formulations for oral ulcer healing and anti-*Candida* efficacy29.

◦ Effective against *C. albicans*, *C. dubliniensis*, and *C. tropicalis* biofilms when combined with *Rosa centifolia* glycolic extracts3031.

• **Pomegranate (*Punica granatum* L.)**

◦ Aqueous and ethanol extracts showed antifungal effects on *Candida albicans*, with alcoholic extracts having higher effectiveness than fluconazole at certain concentrations3233.

◦ Rind extract and Zn(II) demonstrated synergistic activity against *Candida albicans*15.

◦ Glycolic extracts, especially in combination with *Rosmarinus officinalis*, were effective against *C. albicans* and *C. krusei* biofilms, and *C. tropicalis* biofilms30....

• **Pulsatilla decoction** (composed of *Radix pulsatilla*, *Cortex phellodendri*, *Rhizoma coptidis*, and *Cortex fraxini*)

◦ Showed effects in vulvovaginal candidiasis by down-regulating the Dectin-1 signaling pathway, attenuating macrophage-stimulated ROS production, and inhibiting NLRP3 inflammasome activation3637.

• **Specific Ugandan Plant Extracts** (showed broad-spectrum fungistatic activity against resistant and susceptible strains of *C. albicans*, *C. glabrata*, and *C. tropicalis*, proving more effective than fluconazole and amphotericin B drugs)38...:

◦ Aqueous extract (24.4 °C) of *Mitragyna rubrostipulata*38....

◦ Methanol extract of *Khaya anthotheca*38....

◦ Combination of aqueous extract (60 °C) of *Distimake dissectus* + methanol extract of *Khaya anthotheca*38....

• **Rosemary (*Rosmarinus officinalis* L.)**

◦ Its essential oil has an anti-adhesive effect on *C. albicans* and affects its morphogenesis47.

◦ Demonstrated significant *in vitro* antifungal activity (essential oil, various compounds) against *C. albicans*48.

◦ Glycolic extracts, especially in combination with *Punica granatum*, were effective against *C. albicans* and *C. krusei* biofilms, and *C. tropicalis* biofilms30....

• **Sage (*Salvia officinalis*)**

◦ Essential oil inhibits the adhesion of yeast to dentures, preventing candida stomatitis47.

◦ Well-documented *in vitro* antifungal activity4950.

• **Green Tea (*Camellia sinensis*)**

◦ Effective against oral *Candida* via mouthwash8....

◦ Most active *in vivo* extract among those studied5354.

◦ Exhibits significant anti-*Candida* activity and against biofilm formation55.

• **Cranberry (*Vaccinium macrocarpon*)**

◦ *In vitro* inhibits *C. albicans* adhesion and biofilm5657.

• **Other Plant Extracts with Antifungal Activity:**

◦ *Juglans regia* (effective against oral isolates of several *Candida* spp.)15....

◦ *Eucalyptus globulus* (effective against oral isolates of several *Candida* spp.)15....

◦ *Pterospartum tridentatum* (effective against oral isolates of several *Candida* spp.)15.

◦ *Rubus ulmifolius* (effective against oral isolates of several *Candida* spp.)15.

◦ *Hymenocallis littoralis* (methanol sonication extracts, particularly flower and anther, effective against *Candida albicans*)61....

◦ *Cassia fistula* seeds (showed 6-fold decrease in *C. albicans* in blood samples and kidneys in mice)450.

◦ *Arctium lappa* (Burdock) extracts6465.

◦ *Sonneratia alba* (mangrove plant)50.

◦ *Hibiscus sabdariffa* (effective against fluconazole-resistant *C. albicans*, inhibits adhesion, biofilm initiation and formation)2....

◦ *Momordica foetida* root extracts showed good antibacterial activity against *Streptococcus agalactiae*, potentially treating co-occurring bacterial infections associated with candidiasis symptoms6667.

◦ *Solanum chrysotrichum* (saponins from, showed no significant difference in clinical effectiveness compared to ketoconazole in vulvovaginal candidiasis mice model)45.

◦ *Uncaria tomentosa* (effective as miconazole on *C. albicans, C. tropicalis, C. glabrata, and C. krusei* for denture stomatitis)4.

◦ *Piper betle* leaves (inhibited growth of all *Candida* species tested)68.

◦ *Strychnos spinosa* (antimicrobial property against *C. albicans* ATCC strains and isolates)5068.

◦ *Manilkara zapota* seed extracts (silver nanoparticles containing, showed good activity)68.

◦ *Cynomorium coccineum* methanol extract (excellent action against *C. guilliermondii* and *C. krusei* with very low MIC values)22.

◦ *Vicia faba* (acetylic extract showed antifungal activity against *C. albicans* and reduced mortality rates in mice)6970.

◦ *Eugenia dysenterica* (showed excellent activity against *C. tropicalis, C. famata, C. krusei, C. guilliermondii*, and *C. parapsilosis*)2169.

◦ *Pouteria ramiflora* (showed excellent activity against *Candida* species)69.

◦ *Lonicera japonica* (ethanol extract showed very strong antimicrobial activity against *C. albicans* and *C. tropicalis* and potent wound healing capacity)71.

◦ *Pyrostegia venusta* (crude flower extracts showed effective broad-spectrum antifungal activity)65....

◦ *Dioscorea nipponica Makino* (Dioscin, a steroidal saponin from, regulates intestinal macrophage polarization and inhibits colitis-related signaling, beneficial for UC exacerbated by *C. albicans*)36.

◦ *Houttuynia cordata Thunb* (Sodium Houttuyfonate from, reduces macrophage stimulation and inflammatory factor levels, and combined with fluconazole, reduces HIF-1α and IL-17 expression in OPC)3673.

◦ *Magnolia officinalis* (Magnolol, a lignan from, inhibitory effect on oral fungi with no adverse effects; improves inflammatory cell infiltration in DSS-induced colitis)36.

◦ *Cannabidiol (CBD)* and Dill oil have shown beneficial effects on vulvovaginal candidiasis89.

◦ **Propolis:** Anti-*Candida* activity against oral candidiasis8.... Propolis can also activate macrophages74.

◦ **Paeonol** (*Paeonia suffruticosa*), combined with fluconazole/amphotericin B, reduces hypoxic microenvironment and inflammatory response, as well as IL-17-mediated signaling in OPC36.

◦ **Rose (*Rosa centifolia* L.)** glycolic extracts were effective against *C. albicans*, *C. dubliniensis*, and *C. tropicalis* biofilms when combined with *Curcuma longa* glycolic extracts3031.

◦ **Holy Basil (*Ocimum tenuiflorum* / *O. sanctum*)**7576.

◦ **Myrrh (*Commiphora molmol* / *C. myrrha*)**7577.

◦ **Tribulus (*Tribulus terrestris*)**49.

◦ **Andrographis (*Andrographis paniculata*)**249.

◦ **Baical Skullcap (*Scutellaria baicalensis*)**2178.

◦ **Cayenne (*Capsicum frutescens* / *C. annuum*)**78.

◦ **Coleus (*Coleus forskohlii*)**78.

◦ **Elecampane (*Inula helenium*)**56.

◦ **Golden Seal (*Hydrastis canadensis*)**79.

◦ **Japanese Knotweed (*Polygonum cuspidatum*)**79.

◦ **Milk Thistle (*Silybum marianum*)**80.

◦ **Oregon Grape (*Berberis aquifolium* / *Mahonia a.*)**80.

◦ **Phellodendron (*Phellodendron amurense*)**48.

◦ **Sweet Wormwood (*Artemisia annua*)**48.
◦ **Thyme (*Thymus vulgaris*)**81.
◦ **Burdock (*Arctium lappa*)**6465.
◦ **Dandelion (*Taraxacum officinale*)**82.
◦ **Gotu Kola (*Centella asiatica*)**83.
◦ **Mullein (*Verbascum thapsus*)**84.
◦ **Passion Flower (*Passiflora incarnata*)**84.
◦ **St John's Wort (*Hypericum perforatum*)**85.
◦ **Thuja (*Thuja occidentalis*)**85.
◦ **Wormwood (*Artemisia absinthium*)**86.
◦ **Yellow Dock (*Rumex crispus*)**87.
◦ **Grape Seed Extract (*Vitis vinifera*)**7988.
◦ **Black pepper, Bay leaf, Cumin** (spice extracts showed variable inhibition zones against *C. albicans*, with cinnamon having the highest inhibition)89.
◦ **Turmeric leaf and rhizome essential oils, Cascarilla bark oil, Helichrysum oil, *Gloriosa superba Linn* (Colchicaceae) extracts, *Dracaena steudneri* bark (DSB), *Sapium ellipticum* bark (SEB) and *Capparis erythrocarpos* root (CER)** (studied for antifungal activity in immunocompromised mice infected with *Candida albicans*)90.
◦ **Coconut oil**65....
◦ **Caprylic Acid** (from coconut oil, potency similar to prescription antifungals, disrupts cell walls)93....
◦ **Undecylenic Acid** (unsaturated fatty acid from castor oil, for topical infections)9596.
◦ **Peptides:** Plant defensins are generally nontoxic toward mammalian cells and suggest a novel candidiasis treatment97. Specific peptides include:
▪ HsLin06_18 (a linear peptide derived from HsAFP1) showed synergistic action with echinocandins against *C. albicans* and reduced *in vitro* biofilm formation9798.
▪ CaThi (thionin from *Capsicum annuum* fruits) exhibited toxic effects against *Candida* spp. by causing membrane permeabilization and facilitating fluconazole entry97.
▪ OsTDX (tetratricopeptide domain-containing thioredoxin from *Oryza sativa*) showed antifungal activity against *Candida* spp. via destabilizing and disrupting fungal membranes97.

II. Essential Oils and Their Components

• **Cinnamon (Cinnamon bark oil, *Cinnamomum zeylanicum* / *C. verum*)**

◦ Showed highest inhibition against *C. albicans* planktonic and biofilm cells, adherent cells, and biofilms8....

◦ Lowest MIC among essential oils tested in one study109.

◦ Cinnamaldehyde, a main component, showed potent antifungal activity and could prevent invasion of oral mucosa103....

◦ Showed synergistic effects when combined with amphotericin B against stationary-phase *Candida albicans*105....

• **Clove (*Syzygium aromaticum* / Clove bud oil)**

◦ Showed anti-*Candida* activities against *C. albicans* planktonic cells, adherent cells, and biofilms51....

◦ Eugenol, a major component, showed fungicidal properties and could produce synergistic effects with fluconazole24....

◦ Clove bud oil was among the most effective essential oils against *C. auris*115.

• **Thyme (*Thymus vulgaris* L. EO)**

◦ Effective against various oral pathogens and can prevent and treat oral infections caused by *C. albicans*47.

◦ Showed synergistic effects with fluconazole and itraconazole against resistant *C. albicans* isolates24....

◦ Thymol (major component) binds to ergosterol in the membrane, leading to cell death21120.

◦ Exhibited significant antifungal activities, inhibiting biofilm formation and promoting high cell viability24....

• **Tea Tree Oil (*Melaleuca alternifolia*)**

◦ Efficacy against multidrug-resistant *Candida* species *in vitro* and mucosal candidiasis *in vivo*60....

◦ Terpinen-4-ol is the main substance contributing to its anticandidal activity124.

◦ Can inhibit and significantly reduce pre-formed *C. auris* biofilms113126.

◦ Exhibited high antifungal activity against pathogenic *Candida* spp.76.

• **Peppermint (*Mentha piperita* L.)**

◦ Strongest antifungal activity among several tested plants127.

◦ Essential oil activity against *C. albicans* and *C. tropicalis*128.

◦ Antibiofilm activity of menthol, alone or in combination with fluconazole2425.

• **Lemon Grass (*Cymbopogon flexuosus* EO, *Cymbopogon citratus*)**

◦ Strong inhibitory activity on *Candida* biofilm formation, germ tube formation (GTF), adherence, and candidal colonization60....

◦ Among the most effective essential oils against *C. auris*115.

• **Fennel (*Foeniculum vulgare* EO)**

◦ Numerous *in vitro* studies show antifungal activity56....

◦ Showed significantly higher antifungal activities than other essential oils tested and promising approach for vulvovaginal candidiasis, alone or in combination with fluconazole92.

◦ Showed synergistic effect with ginger against *C. albicans, C. glabrata, C. tropicalis*, and *C. parapsilosis*131.

• **Ginger (*Zingiber officinale*)**

◦ Essential oil exhibited significant antifungal activity against both fluconazole-susceptible and -resistant *Candida*8....

◦ Anti-biofilm activity by inhibiting biofilm formation and eradicating preformed biofilms132.

◦ Showed synergistic effect with fennel against *C. albicans, C. glabrata, C. tropicalis*, and *C. parapsilosis*131.

• **Hyssop (*Hyssopus officinalis* L. EO)**

◦ Showed 100% synergistic effect with itraconazole against itraconazole-resistant *C. albicans* isolates47....

• **Ho-sho (*Cinnamonum*) EO**

◦ Among the essential oils with the highest inhibitory activity, and its antifungal activity has been proven against *C. albicans*77.

• **Absinth (*Artemisia absinthium*) EO**

◦ Showed significant activity against *Candida albicans*, effective against all *Candida* species tested77.

◦ Showed synergistic effect with fennel against *C. albicans, C. tropicalis*, and *C. parapsilosis*131.

• **Dill (*Anethum graveolens*) EO**

◦ Showed high inhibitory activity7782.

• **Satureja montana EO**

◦ Exhibited strong antifungal effects, completely killing fungus at lower concentrations105106.

◦ Showed synergistic effects when combined with amphotericin B against stationary-phase *Candida albicans*105....

• **Palmarosa EO**

◦ Exhibited strong antifungal effects, completely killing fungus at lower concentrations105106.

◦ Showed synergistic effects when combined with amphotericin B against growing-phase *Candida albicans*105....

• **Lemon Eucalyptus EO**
  ◦ Showed strong antifungal effects106.
• **Honey Myrtle EO**
  ◦ Showed strong antifungal effects106.
• **Niaouli EO**
  ◦ Able to inhibit *C. auris* planktonic growth and significantly reduce pre-formed biofilms113126.
• **Cajeput EO**
  ◦ Able to inhibit *C. auris* planktonic growth and completely eradicate pre-formed biofilms113126.
• **Sweet Orange (*Citrus sinensis*) / Lemon (*Citrus limon*) EOs**
  ◦ Lemon EO showed fungicidal activity and was not toxic, increasing *C. elegans* survival when infected with *C. glabrata* or *C. orthopsilosis*135136.
  ◦ Sweet Orange EO contains Nerol, confirmed as a potential antifungal drug for *C. albicans* invasion137.
  ◦ Among the most active extracts against *C. albicans*53138.
• **Litsea cubeba EO**
  ◦ Displayed fungistatic activity against *Candida* species135.
• **Rosemary (*Rosmarinus officinalis* L.) EO**
  ◦ Has an anti-adhesive effect on *C. albicans* and affects its morphogenesis47.
  ◦ Can be used to prevent and treat oral infections caused by *C. albicans*47.
• **Myrtus communis L. extracts and essential oils**139.
• **Origanum vulgare (Oregano) EO**
  ◦ Antimicrobial activity against *C. glabrata* oral isolates15140.
  ◦ Its potency can be compared to cinnamon or thyme132.
  ◦ Carvacrol and thymol are key components80.
• **Lippia graveolens EO** (Antimicrobial activity against *C. glabrata* oral isolates)15.
• **Cymbopogon nardus essential oil** (inhibits hyphal growth in *C. albicans*)21141.
• **Artemisia judaica essential oil** (inhibits the formation of germination tube and biofilms in *C. albicans*)21141.
• **Thymus capitatus essential oil**50142.
• **Eucalyptus globulus essential oil**59.
• **Ocimum basilicum EO**47143.

• **Pelargonium graveolens EO** (showed synergistic effect with amphotericin B)50....
• **Ginger grass oil** (*Cymbopogon martini*)146147.
• **Coriander (*Coriandrum sativum*) EO** (showed synergistic effect with amphotericin B)65....
• **Adiantum capillus-veneris** (leaf, stem, and root extracts showed antibacterial and antifungal activities)60.
• **Piper hispidum** (crude extract showed antifungal activity against *C. albicans, C. parapsilosis, C. tropicalis*)151.

III. Other Natural Compounds / Probiotics

• **Honey**
  ◦ Exhibited antifungal action against *C. albicans*, with floral honeys having better activity than artificial honey152153.
  ◦ Displayed antifungal activities against fluconazole-resistant *Candida* spp. isolates152.
  ◦ Can be used prophylactically to prevent *Candida* spp. infections and catheter exit site infections152.
• **Lactobacillus acidophilus (Probiotics)**
  ◦ Led to enhanced clearance of *C. albicans* from the oral cavities of mice8....
  ◦ Probiotic antimicrobial molecules have a direct growth inhibitory effect on *Candida* spp., including organic acids, bacteriocins, hydrogen peroxide, and uncharacterized low molecular weight compounds154.
  ◦ Lactobacilli can reduce the metabolic activity of *Candida* spp. and produce anti-*Candida* substances154.
  ◦ Consumption of probiotic lactobacilli can enhance and restore vaginal homeostasis, inhibiting growth of pathogenic fungi and biofilm formation89.
  ◦ Combinations with lactoferrin and mannan oligosaccharides also showed improved health and inhibitory effects on *C. albicans* adhesion89.
• **Lichochalcone-A** (a polyphenol from *Glycyrrhiza spp.* roots)
  ◦ Showed *in vitro* and *in vivo* antifungal activity against *Candida albicans* biofilms, surpassing fluconazole activity with no apparent toxicity20....
  ◦ Associated with a decline in proteinase and phospholipase activities91.
• **Berberine** (from *Berberis vulgaris* herb, *Coptis chinensis Franch*, and *Phellodendron chinense C.K.Schneid*)
  ◦ Showed antifungal activity against fluconazole-resistant *Candida* spp. in planktonic and biofilm forms28....

◦ Induces mitochondrial dysfunction and increased ROS generation, disrupting cell wall integrity150156.

◦ Synergistic action with fluconazole (against resistant clinical isolates) and miconazole against planktonic and biofilm cultures26....

◦ Inhibits yeast adhesion, morphological hyphae transformation, and biofilm formation by downregulating hyphal-specific genes160.

• **Oleuropein** (from olive leaves)

◦ Powerful antifungal activity against *Candida albicans*, inhibiting growth and targeting various survival factors161.

• **Hinokitiol** (a natural monoterpenoid from cypress family wood)

◦ Showed excellent anti-*C. albicans* activity, including against fluconazole- or caspofungin-resistant strains162.

◦ Reduced biofilm formation and hyphal growth162.

◦ Protected *Caenorhabditis elegans* against infection and enhanced antimicrobial gene expression162.

• **Acetylcholine**

◦ Important in the pathogenesis of fungal infections, inhibiting *C. albicans* yeast-to-hyphae transition and biofilm formation, promoting cellular immune response, and regulating antifungal defenses161163.

• **Carbohydrate-derived fulvic acid**

◦ Proved fungicidal against *C. albicans* planktonic and sessile cells at concentrations similar to caspofungin161.

• **Myriocin**

◦ Displays direct antifungal activity against *C. albicans* biofilms with progressive reduction in biomass and metabolic activity161.

◦ Strongly reduced lipid raft formation and filamentation161.

• **Perillaldehyde** (natural monoterpenoid from *Perilla frutescence*)

◦ Reduces gene expression associated with adhesion of oral epithelial cells by *C. albicans*36.

◦ Reduces neutrophil recruitment and TNF-α secreted by macrophages in vulvovaginal candidiasis36.

• **Quercetin**

◦ Can assist fluconazole to inhibit biofilm formations of fluconazole-resistant *Candida albicans* in *in vitro* and *in vivo* antifungal managements of vulvovaginal candidiasis14....

◦ Curcumin-quercetin nanovesicles showed strong activity against fluconazole-resistant *Candida* isolates2728.

• **Perillyl alcohol** (from *Perilla frutescens* L. ex B. D. Jacks.)
  ◦ Inhibits enzymatic activity and mRNA expression of ICL1 and malate synthase in *C. albicans*, potentially serving as an antifungal candidate due to its well-tolerated human profile166167.
• **Sodium Houttuyfonate** (from *Houttuynia cordata Thunb*)
  ◦ Proven to treat oropharyngeal candidiasis (OPC) in mouse models, enhancing fluconazole monotherapy73168.

Next Step Suggestion: To further understand the clinical applicability of these natural compounds, it would be beneficial to analyze the reported human clinical trial data (even if limited) more deeply, focusing on dosage, duration, specific patient populations, and reported success rates to inform potential strategic recommendations for product development or integration into existing treatment protocols.