**CSU- GLOBAL MIS500-1**

**Initial General Hypothesis Formula**

**Option # 1**

**Addis A Asegahegn**

**April 05, 2020**

**Referecne**

1. Hypothesis testing on Peppermint Essential Oil -------------------------------------------------3

2. Hypothesis testing on **Brinell hardness Scores** --------------------------------------------3.

**1st Hypothesis**

**Peppermint Essential Oil**

“The main chemical constituents of Peppermint essential oil are Menthol, Menthone, and 1,8-Cineole, Methyl acetate and Isovalerate, Pinene, Limonene and other constituents. The most active of these components are Menthol and Menthone. Menthol is known to be analgesic and is thus beneficial for reducing pain such as headaches, muscle aches, and inflammation. Menthone is known to be analgesic as well, but it is also believed to show antiseptic activity. Its invigorating properties lend the oil its energizing effects.”

**Null hypothesis** - Peppermint essential oil has no effect human digestive system.

**Alternative hypothesis** - Peppermint essential oil has effect human digestive system.

Studies indicate that peppermint relaxes your digestive system and may ease pain. It also prevents smooth muscles from contracting, which could relieve spasms in your gut. Additionally, in a review of “14 clinical trials in nearly 2,000 children, peppermint reduced the frequency, length and severity of abdominal pain. Furthermore, capsules containing peppermint oil reduced incidence and severity of nausea and vomiting in a study in 200 people undergoing chemotherapy for cancer.” In this case since I have a proven study, I will reject the null hypotheses and accept the alternative hypothesis that Peppermint essential oil has effect human digestive system.

**2nd Hypothesis**

**Brinell hardness Scores**

“An engineer measured the Brinell hardness of 25 pieces of ductile iron that were subcritical annealed. The resulting data were:

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 170 | 167 | 174 | 179 | 179 | 187 | 179 | 183 | 179 |
| 156 | 163 | 156 | 187 | 156 | 167 | 156 | 174 | 170 |
| 183 | 179 | 174 | 179 | 170 | 159 | 187 |  |  |

The engineer hypothesized that the mean Brinell hardness of all such ductile iron pieces is greater than 170. Therefore, he was interested in testing the hypotheses:”

Test

Null hypothesis    H₀: μ = 170  
Alternative hypothesis    H₁: μ > 170

“The output tells us that the average Brinell hardness of the n = 25 pieces of ductile iron was 172.52. the significance level α at 0.05” and used the critical value approach to perform the hypothesis test. Since the test statistic, t\* = 1.22, is not greater than 1.7109. “the engineer fails to reject the null hypothesis”. That is, the test statistic does not fall in the "critical region." There is lacking evidence, to assume that the mean Brinell hardness of all such ductile iron pieces is greater than 170 so that is the case I will accept the null hypothesis.

<https://examples.yourdictionary.com/examples-of-hypothesis-testing.html>

<https://online.stat.psu.edu/statprogram/reviews/statistical-concepts/hypothesis-testing/examples>