

Specification : Mixed Thai Medicinal Plant Extract for Bad Breath No.1
(Manose RM-0070)

Application : An active ingredient for oral care of breath freshener
and caries protection products

1. Name of the raw material : Mixed Thai Medicinal Plant Extract for Bad Breath No.1
2. Active components : Alkaloids, saponins, tannins, terpenes, steroids, phenolics and flavonoids⁽¹⁾
3. Common and scientific name/ Family of the plant : Clove (*Syzygium aromaticum* (L.) Merr.& L.M.Perry/ MYRTACEAE) and sappan (*Caesalpinia sappan* L./LEGUMINOSAE)
4. Physical appearance : Brownish-orange solid with specific herbal odor
5. pH : 4.69⁽¹⁾
6. Standardization : HPLC fingerprint using eugenol as a marker⁽¹⁾
7. Solubility : Sparingly soluble in methanol / slightly soluble in ethanol / very slightly soluble in water and propylene glycol / practically insoluble in glycerin and mineral oil⁽¹⁾
8. Microbial contamination : No pathogenic microorganism with less than 1,000 cfu/g of the total plate count of bacteria, yeast and fungi which is conformed to the Thai FDA regulation⁽¹⁾
9. Biological activities :
 - Anti-inflammation activity of inhibiting denaturation by heat of albumin from egg white with the IC₅₀ value of 6.06±0.07 mg/ml (IC₅₀ value of diclofenac diethylammonium = 0.62±0.04 mg/ml)⁽¹⁾
 - Anti-inflammation activity in macrophage at 0.01 mg/ml by inhibiting nitric oxide production of 24.66±2.03% (Triamcinolone acetonide at 1 mg/ml =

30.09±2.15%)⁽¹⁾

- Anti-bacterial activity against *Staphylococcus aureus* with the inhibition zone of 18.53±0.36 mm at 2 mg which is 0.78 time of erythromycin 0.025 µg (inhibition zone = 23.86±0.34 mm)⁽¹⁾

- Anti-bacterial activity against *Streptococcus mutans* with the inhibition zone of 14.33±1.08 mm at 2 mg which is 0.52 time of erythromycin (0.025 µg of erythromycin has the inhibition zone = 27.64±0.30 mm)⁽¹⁾

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| 10. Animal / human performance test | : | - |
| 11. Safety | : | No cytotoxicity on human gingival fibroblasts with cell viability of 93.75±3.95% at 0.1 mg/ml |
| 12. Pharmaceutical, food supplement or cosmetic applications | : | Oral and teeth care products (toothpaste and throat spray) |
| 13. Recommended concentrations in the product | : | 0.01-2 % w/w for the concentrated extract / 5-20 % w/w for the extract in 10% propylene glycol solution |
| 14. Storage | : | Keep in tight and light protection container at room temperature |
| 15. Precautions | : | None |
| 16. Cost per kg | : | Please request |

References

Manose In-house Project “Mixed Thai Medicinal Plant Extracts for Oral and Teeth Care Products”, 2022, Unpublished Report, www.manose.co