

Specification : *Syzygium aromaticum* Extract / สารสกัดก้านพลู
(Manose RM-0076)

(Application : An active ingredient for balm/ oral care products

สารสำคัญในผลิตภัณฑ์ยาหม่อง/ ผลิตภัณฑ์สำหรับช่องปาก)

1. Name of the raw material : *Syzygium aromaticum* Extract
2. Active components : Sesquiterpenes, monoterpenes, hydrocarbon, phenolic compounds, eugenyl acetate, eugenol and β -caryophyllene⁽¹⁾
3. Common and scientific name/ Family of the plant : *Syzygium aromaticum* (L.) Merr. & L.M. Perry/ MYRTACEAE
4. Physical appearance : Brown solid with specific odor
5. pH : 5
6. Standardization : HPLC fingerprint using eugenol as a marker⁽²⁾
7. Solubility : Soluble in water and ethanol
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
9. Biological activities : Anti-bacterial, anti-fungal, anti-viral, anti-inflammatory, analgesic, anti-oxidative and anti-cancer activities⁽³⁻⁹⁾
10. Animal / human performance test : Anti-inflammatory and analgesic effects in animals⁽⁷⁾
11. Safety : No skin irritation in human volunteers/ LD₅₀ >5 g/kg BW in rats
12. Pharmaceutical, food supplement or cosmetic applications : Balm/ oral care products

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13. Recommended : 0.1-5 % in products
concentrations in the
product
14. Storage : Keep in tight and light protection container at room
temperature
15. Precautions : -
16. Cost per kg : Please request

References

1. Batiha GE, Alkazmi LM, Wasef LG, et al. *Syzygium aromaticum* L. (Myrtaceae): traditional uses, bioactive chemical constituents, pharmacological and toxicological activities. *Biomolecules* 2020, 10: 202.
2. Cortes-Rojas DF, de Souza CR, Oliveira WP. Clove (*Syzygium aromaticum*): a precious spice. *Asian Pacific Journal of Tropical Medicine* 2014, 4: 90-96.
3. Dorman H, Deans SG. Antimicrobial agents from plants: antibacterial activity of plant volatile oils. *Journal of Applied Microbiology* 2000, 88: 308-316.
4. Rana IS, Rana AS, Rajak RC. Evaluation of antifungal activity in essential oil of the *Syzygium aromaticum* (L.) by extraction, purification and analysis of its main component eugenol. *Brazilian Journal of Microbiology* 2011, 42: 1269-1277.
5. Minami M, Kita M, Nakaya T, et al. The inhibitory effect of essential oils on herpes simplex virus type-1 replication *in vitro*. *Microbiology and immunology* 2003, 47: 681-684.
6. Han X, Parker TL. Anti-inflammatory activity of clove (*Eugenia caryophyllata*) essential oil in dermal fibroblasts. *Pharmaceutical Biology* 2017, 55: 1619-1622.
7. Daniel AN, Sartoretto SM, Schmidt G, et al. Anti-inflammatory and antinociceptive activities A of eugenol essential oil in experimental animal models 2009, *Revista Brasileira de Farmacognosia* 2009, 19: 212-217.
8. Gulcin I, Elmastas M, Aboul-Enein HY. Antioxidant activity of clove oil-a powerful antioxidant source. *Arabian Journal of Chemistry* 2012, 5: 489-499.
9. Kumar P, Febriyanti R, Sofyan F, et al. Anticancer potential of *Syzygium aromaticum* L. in human breast cancer cell lines. *Pharmacological Research* 2014, 6: 350-354.