

Specification : Kao Kam Lang Chang San Leaf and Stem Extract (Manose RM-0083)

Application : An active ingredient for whitening and anti-aging/ cleaning
and anti-acne cosmetic products

1. Name of the raw material : Kao Kam Lang Chang San Leaf and Stem Extract
2. Active components : alkaloids, saponins, triterpenoids, tannins and flavonoids⁽¹⁾
3. Common and scientific name/ Family of the plant : Kao Kam Lang Chang San (*Peristrophe bivalvis* (L.) Merr.)/
ACANTHACEAE
4. Physical appearance : Dark greenish-brown semi solid with specific herbal odor⁽²⁾
5. pH : 6.57⁽²⁾
6. Standardization : HPLC fingerprint using tannin as a marker⁽²⁾
7. Solubility : Sparingly soluble in methanol, slightly soluble in ethanol, very slightly soluble in hot water, practically insoluble in cold water, glycerin, propylene glycol and mineral oil⁽²⁾
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⁽²⁾
9. Biological activities :
 - Antioxidative activity by DPPH radical scavenging with the SC₅₀ value of 0.08±0.00 mg/ml (ascorbic acid = 0.06±0.00 mg/ml)⁽²⁾
 - Antioxidative activity by lipid peroxidation inhibition with the IPC₅₀ value of 1.50±0.29 mg/ml (α-tocopherol = 0.03±0.02 mg/ml)⁽²⁾
 - Tyrosinase inhibition activity with the IC₅₀ value of 0.21±0.09 mg/ml (kojic acid = 0.01±0.00 mg/ml)⁽²⁾
 - Human skin fibroblast proliferation stimulation activity of 19.06±3.98% at 0.1 mg/ml (ascorbic acid = 50.55±5.85%)⁽²⁾

- MMP-2 inhibition activity of $4.11 \pm 2.47\%$ at 1 mg/ml (ascorbic acid 0.01 mg/ml = $31.72 \pm 5.03\%$)⁽²⁾
 - *In vitro* anti-inflammation activity of inhibiting denaturation by heat of albumin from egg white with the IC₅₀ value of 2.48 ± 0.01 mg/ml (diclofenac diethylammonium = 0.06 ± 0.02 mg/ml)⁽²⁾
 - Anti-inflammation activity in macrophage cells at 1 mg/ml by inhibiting nitric oxide production of $35.12 \pm 2.58\%$ (triamcinolone acetonide = $35.63 \pm 2.10\%$)⁽²⁾
 - Anti-bacterial activity against *Cutibacterium acnes* with the inhibition zone of 21.23 ± 2.15 mm at 10 mg (clindamycin at 2 µg = 55.82 ± 1.45 mm)⁽²⁾
 - Anti-bacterial activity against *Staphylococcus aureus* with the inhibition zone of 11.02 ± 1.23 mm at 10 mg (erythromycin at 15 µg = 23.80 ± 0.89 mm)⁽²⁾
10. Animal / human performance test : -
11. Safety : No cytotoxicity on human skin fibroblasts with cell viability of $104.41 \pm 8.33\%$ at 1 mg/ml (SLS 1 mg/ml = $26.42 \pm 1.87\%$)⁽²⁾
12. Pharmaceutical, food supplement or cosmetic applications : Cosmetic products for whitening and anti-aging/ cleaning and anti-acne^(1,2)
13. Recommended concentrations in the product : 1-5 % w/w⁽²⁾
14. Storage : Keep in tight and light protection container at room temperature

15. Precautions : None
16. Cost per kg : Please request

References

1. Adrianta K.A., Satriyasa B.K., Wihandani D.M. and Jawi I.M. The antioxidant capacity of *Peristrophe Bivalvis* (L.) Merr. as natural-based nephroprotection. **Trad. Med. J.**, 2021; 26(1): 35-41.
2. Manose In-house Project “Development of extracts from *Peristrophe bivalvis* (L.) Merr. for application in cosmetics and food supplements” Manose Health and Beauty Research Center (www.manose.co), unpublished, 2022.