

Specification : Mulberry Fruit Extract/ สารสกัดผลหม่อน

(Manose RM-0047)

(Application : An active ingredient for whitening and anti-aging cosmetics/

สารสำคัญในผลิตภัณฑ์เครื่องสำอางช่วยให้ผิวขาวและชะลอวัย)

1. Name of the raw material : Mulberry Fruit Extract
2. Active components : alkaloids, carotenoids and flavonoids
3. Common and scientific name/ Family of the plant : Mulberry (*Morus alba* L.) / MORACEAE
4. Physical appearance : Dark brown - reddish semi-solid with herbal odor
5. pH : 3.67
6. Standardization : HPLC fingerprint using anthocyanin as a marker
7. Solubility : slightly soluble in ethanol and methanol, very slightly soluble both hot and cold water, practically insoluble in glycerin, propylene glycol and mineral oil

8. **Microbial contamination** : No pathogenic microorganism with less than 1,000 cfu/g of bacteria, yeast and fungi which is conformed to the Thai FDA regulation
9. **Biological activities** :
- Antioxidative activity by DPPH radical scavenging with the SC_{50} value of 0.44 ± 0.07 mg/ml (SC_{50} value of vitamin C = 0.06 ± 0.03 mg/ml)
 - Antioxidative activity by nitric oxide radical scavenging with the SC_{50} value of 8.20 ± 2.54 mg/ml (SC_{50} value of vitamin C = 0.50 ± 0.00 mg/ml)
 - Antioxidative activity by metal chelating with the MC_{50} value of more than 1000 mg/ml (MC_{50} value of EDTA = 0.50 ± 0.00 mg/ml)
 - Antioxidative activity by lipid peroxidation inhibition with the IPC_{50} value of 0.29 ± 0.07 mg/ml (IPC_{50} value of vitamin E = 0.14 ± 0.01 mg/ml)

- Tyrosinase inhibition activity with the IC₅₀ value of 0.05±0.01 mg/ml (IC₅₀ value of kojic acid = 0.05±0.01 mg/ml)
- Stimulation of human skin fibroblast proliferation activity of 54.69±7.13% at 1 mg/ml (vitamin C at 0.1 mg/ml = 42.44±2.27%)

10. Animal/ human performance test : -

11. Safety : - No cytotoxicity on human gingival fibroblasts with cell viability of 92.21±5.59% at 1 mg/ml (SLS 1 mg/ml = 35.00±1.02%)

- No cytotoxicity on human skin fibroblasts with cell viability of 104.17±1.92% at 1 mg/ml (SLS 1 mg/ml = 9.11±0.69%)

12. Pharmaceutical, food supplement or cosmetic applications : Whitening and anti-aging cosmetics

13. Recommended concentrations in the product : 0.1 - 5% w/w
14. Storage : Keep in tight and light protection container at room temperature
15. Precautions : None
16. Cost per kg : Please request

References

1. Kim L. and Lee J. (2020) Variation in anthocyanin profiles and antioxidant activity of 12 genotypes of mulberry (*Morus* spp.) fruits and their changes during processing. **Antioxidants (Basel)**. 9(3): 242
2. Aramwit P., Bang N. and Srichana T. (2010) The properties and stability of anthocyanins in mulberry fruits. **Food research international**. 43(3): 1093-1097