

Specification : Lanna Medicinal Plant Extract for Cancer Patients No.4/

สารสกัดจากตำรับยาสมุนไพรล้านนาสำหรับผู้ป่วยโรคมะเร็ง สูตรที่ 4

(Manose RM-0104)

(Application : An active ingredient in food supplements for cancer patients/

สารสำคัญในผลิตภัณฑ์เสริมอาหารสำหรับผู้ป่วยโรคมะเร็ง)

1. Name of the raw material : Lanna Medicinal Plant Extract for Cancer Patients No.4
2. Active components : Tannin, xanthone, sucrose and flavonoid
3. Common and scientific name/ Family of the plant : Extracts from edible and medicinal plants such as Heart-leaved Moonseed⁽¹⁾ (*Tinospora crispa* (L.) Miers ex Hook.f. & Thomson)/ MENISPERMACEAE and Nutgrass⁽²⁾ (*Cyperus rotundus* L.)/ CYPERACEAE
4. Physical appearance : Light brown powder with specific odor
5. pH : 5.01 (1% in distilled water)
6. Standardization : HPLC fingerprint using berberine⁽³⁾ as a marker
7. Stability of active constituent : Stable to strong/weak acid, oxidizing agent and acid salt/Unstable to strong/weak base and reducing agent
8. Solubility : Sparingly soluble in hot water (100 °C), slightly soluble in cold water (25 °C) and insoluble in ethanol, methanol, propylene glycol, glycerin and mineral oil
9. 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
10. Biological activities : - Antioxidant DPPH radical scavenging ($SC_{50} = 0.046$ mg/ml) (standard vitamin C = 0.20 mg/ml)⁽⁴⁾
- Anti-proliferative effect $IC_{50} = 2.64, 3.18, 4.00$ and 11.66 μ g/ml in HepG2, HT-29, HeLa and KB,

respectively (standard cisplatin = 5.52, 1.12, 3.42 and 3.32 µg/ml in HepG2, HT-29, HeLa and KB, respectively)⁽⁴⁾

11. Animal / human performance test : -
12. Safety : Passed acute toxicity (LD₅₀) in rat with the LD₅₀ dose of more than 2 g/kg body weight
13. Pharmaceutical, food supplement or cosmetic applications : Food supplements in cancer patients
14. Recommended concentrations in the product : 7.7 mg/kg body weight or as needed
15. Storage : Keep in tight container at cool place (4 °C) protected from light
16. Precautions : None
17. Cost per kg : Please request

References

1. Kuruppu A.I., Paranagama P. and Goonasekara C.L. Medicinal plants commonly used against cancer in traditional medicine formulae in Sri Lanka. **Saudi Pharm J**, 2019; 27(4): 565-573.
2. Nidugala H., Prabhu A., Avadhani R. and B R. *In vitro* anticancer efficacy of *Cyperus rotundus* (L.) on breast adenocarcinoma cells via the induction of DNA fragmentation and apoptosis. **Biomedicine**, 2023; 43(4): 1198-1202.
3. Srinivasan G.V., Unnikrishnan K.P., Rema Shree A.B. and Balachandran I. HPLC Estimation of berberine in *Tinospora cordifolia* and *Tinospora sinensis*. **Indian J Pharm Sci**, 2008; 70(1): 96-99.
4. Manose In-house Project “The Development of Extract from Lanna Medicinal Plant Recipes for Cancer Patients (CE030)” **Manose Health and Beauty Research Center** (www.manose.co), unpublished, 2007.