

Specification of Seed-under-leaf extract (Manose RM-021)

1. **Name of the raw material** : Seed-under-leaf extract
2. **Active components** : Lignans, flavonoids, tannins, triterpenes, sterols and alkaloids⁽¹⁾
3. **Scientific name of the plant / Family** : Seed-under-leaf (*Phyllanthus amarus* Schumach. & Thonn.)/ EUPHORBIACEAE
4. **Physical appearance of the raw material** : Brownish solid with specific odor
5. **pH of the raw material** : 5
6. **Standardization of the raw material** : HPLC fingerprint using phyllanthin as a marker⁽¹⁾
7. **Solubility** : Soluble in water and ethanol
8. **Microbial contamination** : None
9. **Biological activities** : Anti-bacterial, anti-cancer, gastric ulcer healing, anti-inflammation, anti-oxidant and hepatoprotective effect⁽¹⁾
10. **Safety** : No skin irritation in human volunteers
11. **Animal / human performance test** : Gastric ulcer healing in animals⁽²⁾ and hepatoprotective in human volunteers⁽³⁾
12. **Pharmaceutical, food supplement or cosmetic applications** : Gastric ulcer healing and hepatoprotective food supplement products
13. **Recommended concentrations in the product (%)** : 0.1-5 %
14. **Storage** : Keep in tight and light protection container at room temperature
15. **Precautions (if any)** : None
16. **Cost per kg** : -

References

1. Jay RP, Priyanka T, Vikas S, Nagendra SC, Vinod KD. *Phyllanthus amarus*: Ethnomedicinal uses, phytochemistry and pharmacology: A review. *Journal of Ethnopharmacology* 2011, 138: 286-313.
2. Regi Raphael K, Ramadasan K Inhibition of experimental gastric lesion and inflammation by *Phyllanthus amarus* extract. *Journal of Ethnopharmacology* 2003; 87: 193-7.
3. Nikam PS, Nikam SV, Sontakke AV, Khanwelkar CC. Role of *Phyllanthus amarus* treatment in hepatitis-C. *Biomedical Research* 2011, 22: 319–322.