

Specification of APTO extract (Manose RM-032)

1. **Name of the raw material** : APTO mixed plant extract
2. **Active components** : flavonoids, phytoestrogens
3. **Scientific names of the plants** : Emblic Myrabolan (*Phyllanthus emblica*, L.), Myrabolan Wood (*Terminalia chidula*) and Purple Glutinous Rice (*Oryza sativa*, L.)
4. **Physical appearance of the raw material** : dried dark greenish brown solid
5. **pH/odor of the raw material** : 4.28 (1% dispused in distilled water) / herbal odor
6. **Standardization of the raw material** : HPLC fingerprint by using tannin as a marker
7. **Solubility** : Soluble in water and ethanol
8. **Microbial contamination** : None
9. **Biological activities** :
 - Anti-alzeimer by inhibiting acetyl cholinesterase with the IC₅₀ value of 3.30 mg/ml at 2 minutes in comparing to the standard drug, galantamine (use to treat mild to moderate Alzeimer's disease and various other memory impairment, in particular those of vascular origin) with the IC₅₀ value of 2.15±0.20 µg/ml at 2 minutes
 - Antioxidant activities by DPPH free radical scavenging activity at IC₅₀ of 0.047±0.023 mg/ml (IC₅₀ of vitamin C at 0.131±0.041 mg/ml), metal chelating activity at IC₅₀ of 0.124±0.032 mg/ml (IC₅₀ of EDTA at 0.743±0.014 mg/ml) and lipid peroxidation activity at IC₅₀ of 0.264±0.015 mg/ml (IC₅₀ of vitamin C at 0.317±0.169 mg/ml)
10. **Safety** : No toxicity with LD₅₀ of more than 5g/kilogram body weight in Wistar rats

- 11. Food supplement applications** : For tonic of mild to moderate Alzheimer symptoms
- 12. Recommended dose** : 180-360 mg/day
- 13. Storage** : Keep in tight and light protection container in a refrigerator at 4°C (3-4 years of shelf life)
- 14. Precautions** : Not for children under 12 years old
- 15. Cost per Kg** : -