

Specification : APTO Serum (Manose PR-0028)

(Application : For anti-wrinkle)

1. Name : APTO Serum
2. Active Compositions : Mixed Thai medicinal plant extracts including Indian Gooseberry (*Phyllanthus emblica*) fruit and Myrobalan Wood (*Terminalia chebula* Retz.) fruit
3. FDA Registration No. : 50-1-6600022257
4. Characteristics
 - Physical appearance : Light brown viscous liquid
 - pH : 6.54±0.03
 - Odor : Light specific herbal odor
5. Standardization : HPLC fingerprint using gallic acid as a marker
6. Biological activities :
 - Hyaluronidase inhibition activity with the IC₅₀ of 3.67±0.72 mg/ml which is 0.88 time of disodium cromoglycate; DSCG (IC₅₀ value = 1.03±0.15 mg/ml)
 - *In vitro* tyrosinase inhibition activity with the IC₅₀ value of 1.11±0.03 mg/ml which is 0.02 time of kojic acid (IC₅₀ value = 0.02±0.00 mg/ml)
 - Melanin inhibition activity in melanoma (B16F10) of 63.41±4.36% which is 0.89 time of kojic acid (71.07±4.22%)
 - Tyrosinase inhibition activity in melanoma (B16F10) of 57.65±5.77% which is 0.77 time of kojic acid (74.93±8.81%)
 - Elastase inhibition activity with the IC₅₀ value of 39.57±6.95 mg/ml (IC₅₀ value of epigallocatechin gallate; EGCG = 0.02±0.00 mg/ml)
 - Collagenase inhibition activity with IC₅₀ value of

186.61±11.25 mg/ml (vitamin C = 0.08±0.03 mg/ml)

7. **Clinical Performance** : Wrinkle reduction at 17.48±4.77% after 4 weeks application
8. **Microbial Contamination** : No pathogenic microorganism contamination. The amounts of the aerobic bacteria, yeast and fungi are less than 1,000 cfu/g which is in the acceptable range of Thai FDA, Ministry of Public Health
9. **Safety Evaluation** :
 - No cytotoxicity on human skin fibroblasts at 1 mg/ml with the cell viability of 93.29±5.39%
 - No skin irritation in human volunteers by the 4h closed patch test
10. **Stability** : Physically stable by the heating-cooling process (45 and 4 °C) of 6 cycles
11. **Shelf life at 30 °C** : 2 – 5 years
12. **Indication and use** : Apply and rub gently daily on face after cleansing in the morning and evening
13. **Packaging and Storage** : 20 ml in a bottle or tube / keep in dry and cool place protected from light
14. **Precaution** : Rinse off and stop using when there is any undesirable effect
15. **Cost** : Please request

Reference :

Manose In-house Project “Development of anti-aging and whitening serum containing herbal extracts” Manose Health and Beauty Research Center (www.manose.co), unpublished, 2022.