

Specification : Hair Serum Schwarz-S (Manose PR-0015)

(Application : For hair darkening stimulation and anti-hair loss)

1. Name : Hair Serum Schwarz-S
2. Active Compositions : Extracts from Thai medicinal plants including False Daisy (*Eclipta prostrata* L.) and Ya-Nang (*Tiliacora triandra* (Colebr.) Diels.) encapsulated in nanovesicles
3. FDA Registration No. : In the process of cosmetic product notification with Thai FDA
4. Characteristics
 - Physical appearance : Dark green-brownish viscous liquid
 - pH : 6.16
 - Odor : Herbal odor
 - Particle size : 622.43±17.34 nm
5. Standardization : HPLC fingerprint using gallic acid as a marker (retention time at 4.37 min)
6. Biological activities :
 - Melanin induction activity in cell line of 34.70±3.66% which is 0.26 time of the standard hair darkening drug, theophylline (130.63±6.41%)
 - Tyrosinase stimulation activity in cell line of 71.90±3.38% which is 0.11 time of the standard hair darkening drug, theophylline (660.25±8.19%)
 - Anti-inflammation activity of inhibiting denaturation by heat of albumin from egg white with the IC₅₀ value of 1.94±0.17 mg/ml which is 0.31 time of the standard anti-inflammatory drug, diclofenac dirthylammonium which gives the IC₅₀ value of 0.60±0.02 mg/ml
 - Antioxidant activity by DPPH radical scavenging with the SC₅₀ value of 9.44±0.13 mg/ml which is 0.002 time

of vitamin C which gives the SC_{50} value of 0.02 ± 0.00 mg/ml

- 5α -reductase inhibition activity of $36.29 \pm 1.74\%$ at 1 mg/ml (the standard anti-hair loss drugs, dutasteride and finasteride at 10 μ g/ml give 56.37 ± 2.15 and $74.65 \pm 1.98\%$, respectively)
- Anti-fungal activity against *Candida albicans* at 5 mg with the inhibition zone of 7.39 ± 1.29 mm which is 0.23 time of the standard anti-fungal drug, fluconazole at 0.025 μ g which gives the inhibition zone of 32.21 ± 1.34 mm
- Anti-fungal activity against *Malassezia furfur* at 10 mg with the inhibition zone of 11.40 ± 2.42 mm which is 0.35 time of the standard anti-fungal drug, ketoconazole at 0.2 μ g which gives the inhibition zone of 32.48 ± 2.91 mm

7. Clinical Performance : -
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 cell viability of $128.09 \pm 5.08\%$
 - No skin irritation in human volunteers by the 4h closed patch test
10. Stability : Physical stability by the heating-cooling process (45 and 4 °C) of 6 cycles and physical stability at various temperatures (4, 25 and 45 °C) for 12 weeks
11. Shelf life at 30 °C : 2 years
12. Indication and use : Apply on the scalp and hair that have gray hair or less

- hair by dropping and then massaging for 1 minute every day, after shampooing. Use continuously for 1-2 months.
13. **Packaging and Storage** : 30 ml in a bottle / keep in cool place and protect from light
14. **Precaution** : - For external use only
- Avoid from inhalation and getting into eyes
- Rinse off and stop using when there is any undesirable effect
15. **Cost** : Please request