

**Specification : Hair Lotion Darlos Manose (Manose PR-0002)**

**(Application : For anti-hair loss and hair blackening)**

1. **Name** : Hair Lotion Darlos Manose
2. **Active Compositions** : Extracts from Thai medicinal plants such as Sorghum/ (*Sorghum bicolor*), Soy Bean/ (*Glycine max* (L.) Merrill), Pamelo/ (*Citrus maxima* (Burm.) Merrill), Butterfly Pea/ (*Clitoria ternatea* L.) and Tamarind/ (*Tamarindus indica* L.) encapsulated in nanovesicles
3. **FDA Registration No.** : 10-1-6200031103
4. **Characteristics**
  - **Physical appearance** : Dark brown solution
  - **pH** : 5
  - **Odor** : Specific herbal odor
  - **Particle size** : 186.27±65.29 nm
5. **Standardization** : HPLC fingerprint using linoleic acid as a marker (retention time at 8.39 mins. with the linoleic content of 0.26 mg/g)
6. **Biological activities** :
  - Antioxidative activity by DPPH radical scavenging with the  $SC_{50}$  value of 2.07±18.51 mg/ml in comparing to vitamin C (0.08±0.01 mg/ml)
  - Anti-inflammatory activity by heat denaturation inhibition of albumin from egg white with the  $IC_{50}$  value of 1.36±0.72 mg/ml which is 0.26 fold of the standard anti-inflammatory drug, diclofenac ( $IC_{50}$  value of 0.35±0.02 mg/ml)
  - $5\alpha$ -reductase inhibition activity of 6.66±2.16% at 1 mg/n which is 0.59 and 0.52 fold of the standard anti-hair loss drugs, finasteride and dutasteride, respectively
  - Melanin induction activity in cell cultures of 64.90±10.34 which is 0.35 fold of the standard drug, theophylline

- (186.76±9.45%)
- Tyrosinase stimulation activity in cell cultures of 122.62±3.78% which is 0.23 fold of the standard drug, theophylline (525.93±20.44%)
7. **Animal study** : - Increase numbers of hair on aged black mice more than the negative control and the dutasteride groups after 6 weeks of topical application
- For histopathological observation, increase numbers of hair follicles of the aged black mice more than the negative control and the dutasteride treated groups after 3 and 6 weeks of topical application
  - More numbers of growth and density of hair on rabbit's back in comparing to the negative control and the group applied with 5% minoxidil
8. **Clinical Performance** : When tested in 15 human volunteers for 8 weeks, most volunteers give an increased number of hair with decreasing of falling hair more than when applied with 1% minoxidil
9. **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
10. **Safety Evaluation** : No irritation in human skin fibroblasts and human volunteers
11. **Stability** : Physically and chemically stable by the heating-cooling process (45 and 4 °C) of 6 cycles with 95% remaining of linoleic acid content
12. **Shelf life at 30 °C** : 5 years
13. **Indication and use** : Spray on the scalp, the gray and less hair area with massage for 1 minute every day, after shampooing in the evening without rinsing off and shampooing in the next

- morning. Use continuously for 1-2 months.
14. Packaging and Storage : 50 ml in a bottle with sprayer/ keep in dry and cool place protected from light
15. Precaution : - For external use only  
- Avoid from inhalation and getting into eyes  
- Rinse off and stop using when there is any undesirable effect
16. Cost : Please request



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