

Specification : Lanna Medicinal Plant Extract for Hypertension Patients /

สารสกัดจากตำรับยาสมุนไพรล้านนาสำหรับผู้ป่วยความดันโลหิตสูง

(Manose RM-0100)

(Application : An active ingredient for food supplements in hypertension patients/

สารสำคัญในผลิตภัณฑ์เสริมอาหารสำหรับผู้ป่วยความดันโลหิตสูง)

1. Name of the raw material : Lanna Medicinal Plant Extract for Hypertension Patients
2. Active components : Glycoside, tannin and xanthone<sup>(1)</sup>
3. Common and scientific name/ Family of the plant : Extracts from edible and medicinal plants such as Black-cumin<sup>(2)</sup> (*Nigella sativa* L./ RANUNCULACEAE) and Myrobalan gall<sup>(3)</sup> (*Terminalia chebula* Retz./ COMBRETACEAE)
4. Physical appearance : Light brown powder with specific odor
5. pH : 4.55 (1% in distilled water)
6. Standardization : HPLC fingerprint using gallic acid as a marker at retention time of 2.34 min<sup>(1)</sup>
7. Stability of active constituent : Stable to strong/weak acid, oxidizing agent and acid salt/ Unstable to strong/weak base and reducing agent
8. Solubility : Slightly soluble in hot water (100 °C) and cold water (25 °C), insoluble in ethanol, methanol, propylene glycol, glycerin and mineral oil
9. Microbial contamination : No pathogenic microorganism with less than 1,000 cfu/g of the total plate count of bacteria, yeast and fungi which is conformed to the Thai FDA regulation
10. Biological activities : - Antioxidant DPPH radical scavenging (SC<sub>50</sub> = 0.0063 mg/ml) (standard vitamin C = 0.20 mg/ml)<sup>(1)</sup>

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- Antioxidant metal chelating ( $MC_{50} = 667.07$  mg/ml)  
(standard EDTA= 0.51 mg/ml)<sup>(1)</sup>
11. Animal / human performance test : Antihypertensive effect with %relative activity = 94.83% (tail cuff method) (standard prazosin = 45.43%)<sup>(1)</sup>
12. Safety :  $LD_{50} > 5000$  mg/kg in Wistar rats by oral administration/ considered as practically nontoxic
13. Pharmaceutical, food supplement or cosmetic applications : Tonic food supplements in hypertension patients
14. Recommended concentrations in the product : 2.6 mg/kg body weight or as needed
15. Storage : Keep in tight container at cool place (4 °C) protected from light
16. Precautions : None
17. Cost per kg : Please request

## References

1. Manose In-house Project “The Development of Extract from Lanna Medicinal Plant Recipe for Hypertension Patients (HT009)”, Manose Health and Beauty Research Center (www.manose.co), unpublished, 2010.
2. Jaarin K., Foong W.D., Yeoh M.H., Kamarul Z.Y.N., Qodriyah H.M.S., Azman A., Zuhair J.S.F., Juliana A.H., and Kamisah Y. Mechanisms of the antihypertensive effects of *Nigella sativa* oil in L-NAME-induced hypertensive rats. Clinics (Sao Paulo). 2015; 70(11): 751-757.
3. Sornwatana T., Bangphoomi K., Roytrakul S., Wetprasit N., Choowongkomon K. and Ratanapo S. Chebulin: *Terminalia chebula* Retz. fruit-derived peptide with angiotensin-I-converting enzyme inhibitory activity. Biotechnology and Applied Biochemistry, 2015; 62(6): 746-753.