

Specification : Myrobalan Gall Extract / สารสกัดโกฐพุงปลา
(Manose RM-0002)

(Application : An active ingredient for anti-wrinkle / whitening cosmetics and immunomodulatory food supplements / สารสำคัญในผลิตภัณฑ์เครื่องสำอางต้านริ้วรอย / ช่วยให้ผิวขาว และผลิตภัณฑ์เสริมอาหารเพื่อเสริมภูมิคุ้มกัน)

1. Name of the raw material : Myrobalan gall extract
2. Active components : Tannins and phenolic compounds such as gallic acid⁽¹⁾
3. Common and scientific name/ Family of the plant : Myrobalan gall (*Terminalia chebula* Retz. gall)/ COMBRETACEAE
4. Physical appearance : Brownish solid with specific odor
5. pH : 2
6. Standardization : HPLC fingerprint using gallic acid as a marker
7. Solubility : Soluble in water and ethanol
8. 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
9. Biological activities :
 - Anti-oxidative activities (DPPH, lipid peroxidation and chelating activity), MMP-2 (collagen degradation enzyme) inhibition
 - Immunomodulatory effect
 - Anti-proliferative activities on human mouth epidermal carcinoma(KB), human hepatocellular carcinoma(HepG2) and human colon adenocarcinoma(HT-29) cell lines with the IC₅₀

values of 262.65 ± 34.66 , 474.66 ± 3.13 and 871.14 ± 146.47 $\mu\text{g/ml}$, respectively, while doxorubicin, the standard anti-cancer drug gives the IC_{50} values on KB, HepG2 and HT-29 of 10.19 ± 0.50 , 12.60 ± 0.48 and 9.91 ± 0.22 $\mu\text{g/ml}$, respectively.

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| 10. Animal / human performance test | : | Anti-wrinkle and whitening in human volunteers ⁽²⁾ |
| 11. Safety | : | No skin irritation in human volunteers |
| 12. Pharmaceutical, food supplement or cosmetic applications | : | Anti-wrinkle and whitening cosmetics and immunomodulatory food supplements |
| 13. Recommended concentrations in the product | : | 0.1-5 % w/w |
| 14. Storage | : | Keep in tight and light protection container at room temperature |
| 15. Precautions | : | None |
| 16. Cost per kg | : | Please request |

References

1. Manosroi A, Jantrawut P, Akazawa H, Akihisa T, Manosroi J. (2010) Biological activities of phenolic compounds isolated from galls of *Terminalia chebula* Retz. (Combretaceae). **Natural Product Research**. 24(20) : 1915-1926 (Corresponding author and co-authors are from Manose Health and Beauty Research Center)

2. Manosroi A, Jantrawut P, Akihisa T, Manosroi W, Manosroi J. (2011) *In vitro* and *in vivo* skin anti-aging evaluation of gel containing niosomes loaded with a semi-purified fraction containing gallic acid from *Terminalia chebula* galls. **Pharmaceutical Biology**. 49(11): 1190-1203 (Corresponding author and co-authors are from Manose Health and Beauty Research Center)