

Specification : Pumpkin Fruit Extract / สารสกัดผลฟักทอง

(Manose RM-0088)

(Application : An active ingredient for anti-fatigue dietary supplement products /

สารสำคัญในผลิตภัณฑ์เสริมอาหารลดความเหนื่อยล้า)

1. Name of the raw material : Pumpkin Fruit Extract
2. Active components : Carotenoids, tocopherols, polysaccharides and phenolic⁽¹⁾
3. Common and scientific name/ Family of the plant : Pumpkin (*Cucurbita moschata* / CUCURBITACEAE)
4. Physical appearance : Dark yellowish brown semi-solid
5. pH : 6.09 (pumpkin juice)⁽²⁾
6. Standardization : HPLC fingerprint using β -carotene as a marker⁽²⁾
 β -carotene is stable at pH 6-7, but unstable at high temperature and light⁽³⁾
7. Solubility : Soluble in water and alcohol
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 : Antioxidative activity by DPPH radical scavenging of 23.85±1.1% at 800 μ g/ml⁽⁴⁾
10. Animal / human performance test : Increase in energy storage (as glycogen) and release (as blood glucose), and decrease of plasma levels of lactate, ammonia, and creatine kinase in exhaustive swimming mice⁽⁵⁾
11. Safety : After oral feeding of 250 mg/kg/day for 14 days in mice, no changes in the body, skeletal muscle mass and also

no side effects in the liver profile (AST, ALT and albumin), bile duct function (ALP and total bilirubin), cardiac profile (LDH), muscular function (CK), renal profile (BUN, creatinine and uric acid) and lipid levels (TC and TG) after oral 250 mg/kg/day for 14 days in mice⁽⁵⁾

12. **Pharmaceutical, food supplement or cosmetic applications** : Dietary supplement products for anti-fatigue⁽⁵⁾
13. **Recommended concentrations in the product** : 0.1-10% w/w for dietary supplement products (the solid crude extract 0.1%, while 10% for the 1% crude extract in propylene glycol)
14. **Storage** : Keep in tight and light protection container at low temperature
15. **Precautions** : None
16. **Cost per kg** : Please request

References

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2. Kulczyński B., Sidor A. and Gramza-Michałowska A. Antioxidant potential of phytochemicals in pumpkin varieties belonging to *Cucurbita moschata* and *Cucurbita pepo* species. *CYTA - Journal of Food*, 2020; 18(1): 472-484.
3. Kadian SS., Sharma A. and Sood D.R. Effect of light and heat on stability of crude carotenoid extract from natural sources. *International Journal of Pharmaceutical Sciences and Research*, 2013; 4(6): 2415-2418.

4. Indrianingsih AW., Rosyida VT., Apriyana W., Nur Hayati S., Nisa K., Darsih C., Kusumaningrum A., Ratih D. and Indirayati N. Comparisons of antioxidant activities of two varieties of pumpkin (*Cucurbita moschata* and *Cucurbita maxima*) extracts. *IOP Conf. Ser.: Earth Environ. Sci.*, 2019; 251: 012021.
5. Wang S-Y., Huang W-C., Liu C-C., Wang M-F., Ho C-S., Huang W-P., Hou C-C., Chuang H-L. and Huang C-C. Pumpkin (*Cucurbita moschata*) fruit extract improves physical fatigue and exercise performance in mice. *Molecules*, 2012; 17: 11864-11876.