

Specification : Ma Kiang Leaf Extract / สารสกัดใบมะเกี๋ยง  
(Manose RM-0010)

(Application : An active ingredient for whitening / anti-wrinkle cosmetics  
and food supplements / สารสำคัญในผลิตภัณฑ์เครื่องสำอางช่วยให้ผิวขาว /  
ต้านริ้วรอย และผลิตภัณฑ์เสริมอาหาร)

1. Name of the raw material : Ma Kiang Leaf Extract
2. Active components : Anthocyanins, glycosides, vitamin C and flavonoids<sup>(1)</sup>
3. Common and scientific name/  
Family of the plant : Ma Kiang (*Cleistocalyx nervosum* var. *paniala*)/ MYRTACEAE
4. Physical appearance : Dark brownish solid with specific odor
5. pH : 4
6. Standardization : HPLC fingerprint using cyanidin 3-glucoside as a marker<sup>(2)</sup>
7. Solubility : Soluble in water and ethanol

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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-wrinkle activity with anti-oxidative activities (DPPH, lipid peroxidation and chelating activities)<sup>(1)</sup> and MMP-2 (collagen degrading enzyme) inhibition activity<sup>(1)</sup> and whitening activity by tyrosinase inhibition<sup>(1)</sup>
10. Animal/ human performance test : Anti-oxidative activity in animals<sup>(3)</sup>
11. Safety : No skin irritation in human volunteers
12. Pharmaceutical, food supplement or cosmetic applications : Whitening/ anti-wrinkle cosmetics and food supplement products
13. Recommended concentrations in the product : 0.1-5 % w/w

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14. Storage : Keep in tight and light protection container  
at room temperature
15. Precautions : None
16. Cost per kg : Please request

## References

1. Manosroi J, Chankhampan C, Kumguan K, Manosroi W, Manosroi A. (2015) *In vitro* anti-aging activities of extracts from leaves of Ma Kiang (*Cleistocalyx nervosum* var. *paniala*). **Pharmaceutical Biology**. 53(6) : 862-869 (Corresponding author and co-authors are from Manose Health and Beauty Research Center)
2. Jansom C, Bhamarapravati S, Itharat A. (2008) Major anthocyanin from ripe berries of *Cleistocalyx nervosum* var. *paniala*. **Thammasat Medical Journal**. 8(3) : 364-370
3. Taya S, Punvittayakul C, Chewonarin T, Wongpoomchai R. (2009) Effect of aqueous extract from *Cleistocalyx nervosum* on oxidative status in rat liver. **Thai Journal Toxicology**. 24(2) : 101-105