

Specification of Pepper extract (Manose RM-014)

1. **Name of the raw material** : Pepper extract
2. **Active components** : Alkaloids, monoterpenes and volatile oils ⁽¹⁾
3. **Scientific name of the plant / Family** : Pepper (*Piper nigrum* L.)/ PIPERACEAE
4. **Physical appearance of the raw material** : Light brownish solid with specific odor
5. **pH of the raw material** : 5
6. **Standardization of the raw material** : HPLC fingerprint using piperine as a marker ⁽¹⁾
7. **Solubility** : Soluble in water and ethanol
8. **Microbial contamination** : None
9. **Biological activities** : Anti-oxidant ⁽¹⁾, burning effect ⁽²⁾, anti-inflammation ⁽³⁾
and anti-sprain ⁽⁴⁾
10. **Safety** : No skin irritation in human volunteers
11. **Animal / human performance test** : Anti-inflammation in animals ⁽⁴⁾ and anti-sprain in
human volunteers ⁽⁵⁾
12. **Pharmaceutical, food supplement or cosmetic applications**
: External use for anti-sprain and increase blood
circulation / hair loss protection cosmetic products and
weight loss food supplement products
13. **Recommended concentrations in the product (%)**
: 0.1-5 %
14. **Storage** : Keep in tight and light protection container at room
temperature
15. **Precautions (if any)** : Avoid contact with eyes or soft tissue because of
irritation, must not use in children under 6 years old
16. **Cost per kg** : -

References

1. Nahak G, Sahu RK. Phytochemical evaluation and antioxidant activity of *Piper cubeba* and *Piper nigrum*. Journal of Applied Pharmaceutical Science 2011, 1(8): 153-157.
2. Keith S. Black Pepper overview of health benefits. nutrition today 2010, 45(1): 43-47.
3. Costa R, Machado J, Abreu C. Evaluation of analgesic properties of *Piper Nigrum* essential oil: a randomized, double-blind, placebo-controlled Study. World Journal of Traditional Chinese Medicine 2016, 2(2): 60–64.
4. Jun SB, Da HO, Hyun MC, Bong-Jun S, Sung-Jig L, Jung YK, Hyung-In Y, Myung CY, Dae-Hyun H, Kyoung SK. Anti-inflammatory and antiarthritic effects of piperine in human interleukin 1 β -stimulated fibroblast-like synoviocytes and in rat arthritis models. Arthritis Research and Therapy 2009, 11(2): 1-9.