



DISEMBER 2008

**NATURAL-HEALTH /  
PURE SWIETENIA  
MAHOGANY SEED**

**HEALTH TECHNOLOGY ASSESSMENT SECTION  
MEDICAL DEVELOPMENT DIVISION  
MINISTRY OF HEALTH MALAYSIA**

**024/08**

**DISCLAIMER**

Technology review is a brief report, prepared on an urgent basis, which draws on restricted reviews from analysis of pertinent literature, on expert opinion and / or regulatory status where appropriate. It is not subjected to an external review process. While effort has been made to do so, this document may not fully reflect all scientific research available. Additionally, other relevant scientific findings may have been reported since completion of this review.

Please contact: htamalaysia@moh.gov.my, if you would like further information.

Health Technology Assessment Section (MaHTAS)  
Medical Development Division  
Ministry of Health Malaysia  
Level 4, Block E1, Precinct 1  
Government Office Complex  
62590 Putrajaya.

Tel: 603 88831246

Fax: 603 8883 1230

Available at the following website: <http://www.moh.gov.my>

**Prepared by:**

Dr Mohd Aminuddin Mohd Yusof  
Principal Assistant Director  
Health Technology Assessment Section  
Ministry of Health

**Reviewed by:**

Datin Dr Rugayah Bakri  
Deputy Director  
Health Technology Assessment Section  
Ministry of Health

## EXECUTIVE SUMMARY

Herbal medicine refers to the use of plant or its extracts for treatment and prevention of disease. The specific ingredient that causes a therapeutic effect is not known for most herbs. The World Health Organization estimates that 80% of the world's population presently uses herbal medicine for some aspects of primary health care.

*Swietenia* is a genus of trees in the mahogany family Meliaceae and *Swietenia mahagoni* is one of the three species under it. The fruit of mahogany is widely known as 'sky fruit' because it seems to hang upwards from the tree. The extract of this fruit is claimed to have many medicinal benefits.

There was insufficient evidence to support the effectiveness of "Natural-Health", Naturo or "Swietenia Mahogany". In fact, there was no evidence retrieved on its safety and cost-effectiveness.

More clinical research are required to provide evidence to support the effectiveness, safety and cost-effectiveness of "Natural-Health", Naturo or "Swietenia Mahogany" in the treatment of any medical problem it is intended for.

# NATURAL-HEALTH / PURE SWIETENIA MAHOGANY SEED

## 1. INTRODUCTION

Herbal medicine refers to the use of plant or plant extracts (e.g. seeds, berries, roots, leaves, bark, or flowers) for the treatment and prevention of disease.<sup>1</sup> The products are sold as tablets, capsules, powders, teas, extracts and fresh or dried plants. Many of them have been used for a long time and claim to have health benefits. However, some can cause either health problems, not effective and even interact with other drugs that are being taken.

The specific ingredient that causes a therapeutic effect is not known for most herbs.<sup>1</sup> It is likely that many ingredients in a particular herbs work synergistically to produce the desired medicinal effect.<sup>1,2</sup> In fact, several herbs are often used together to enhance effectiveness and reduce toxicity of the medicines. The United States Food and Drug Administration (US FDA) classifies herbs as dietary supplements and forbids manufacturers to claim that their products are able to treat or prevent specific diseases.<sup>2</sup> However, in some countries in Europe, herbs are classified as drugs and are regulated.

The use of herbs to treat disease is almost universal among non-industrialized societies.<sup>2</sup> This is probably because pharmaceutical drugs are expensive to be bought. In fact, World Health Organization estimates that 80% of the world's population presently uses herbal medicine for some aspects of primary health care. Among those few herbal remedies demonstrated positive effect on humans, many refer to animal model experiments or in-vitro assays. One of the herbal products available in the market is Natural-Health/Naturo which is being produced from Pure Swietenia Mahogany Seed.

This technology review was requested by the Director of Medical Development Division, Ministry of Health Malaysia.

## 2. OBJECTIVE

To assess the effectiveness, safety and cost-effectiveness of Natural-Health/Pure Swietenia Mahogany Seed

## 3. TECHNICAL FEATURES

*Swietenia* is a genus of trees in the mahogany family Meliaceae.<sup>3</sup> The species of the genus are *Swietenia humilis*, *Swietenia macrophylla* and *Swietenia mahagoni*. They are found in an area encompassing from southern Florida, the Caribbean, Mexico and Central America south to Bolivia. The trees are medium to large in size, grow up to 20-45 in metres high and may have trunk up to 2 metres in diameter. This genus is famed as the supplier of mahogany, which was so extensively used locally and exported elsewhere. These days almost all mahogany is yielded by the mainland species, *Swietenia macrophylla*.

The fruits of the mahogany genus tress are pear-shaped, five-valved capsule of 8-20 cm long and contain numerous winged seeds of about 5-9 cm long.<sup>3</sup> They are widely known as 'sky fruit'

because they seem to hang upwards from the tree.<sup>3,4</sup> The concentrate or natural remedy of the fruit is an energy drink and is said to have a number of medicinal effects.



Fruits of mahogany trees<sup>3</sup>

## 4. METHODOLOGY

### 4.1 Search Methods

Literatures were searched through electronic databases specifically PubMed, Ovid full text, Cochrane, INAHTA and also general databases. The search strategy used the terms, which are either singly or in various combinations: “Natural-Health”, Naturo and “Swietenia Mahogany”. No limit was applied in the search.

### 4.2 Selection of studies

Any primary and secondary papers pertaining to “Natural-Health”, Naturo and “Swietenia Mahogany” will be included in this technology review. A critical appraisal of the retrieved relevant papers was performed and the evidence level was graded according to the US/Canadian Preventive Services Task Force (Appendix 1).

## 5. RESULTS AND DISCUSSION

### 5.1 Effectiveness

There was no retrievable evidence on effectiveness of “Natural-Health”, Naturo or “Swietenia Mahogany” from the scientific databases. However, there was one paper on “Swietenia Mahogany” obtained from the general database. The paper was on an animal study with the objective of determining the effects of Swietenia mahogany (mahogany) seed extracts on indomethacin- induced gastric ulcers in 45 female Sprague-Dawley rats.<sup>5</sup> Level III The rats were given either mahogany seed extract at three different doses (0.142 g/kg body weight (BW)), 0.283 g/kg BW and 0.572 g/kg BW), 5% polyvinylpyrrolidone (PVP) or misoprostol (a FDA approved drug for the treatment of Peptic Ulcer Disease). Using Kruskal-Wallis one-way analysis of variance by ranks, the studies showed that there was significant difference in both analysis of gross specimens ( $p=0.05$ ) and histopathological analysis ( $p=0.05$ ) among the five treatment groups. Thus, Mahogany seed extract was found to have an effect on the gastric

mucosal similar to that of Misoprostol but this needed to be further investigated. Under histopathological examination too, ulceration was found to reach submucosa in majority of the specimens. Based on these findings, the author concluded that at the doses utilized in the study, mahogany seed extract was found to have a potential effect on the healing of gastric ulcer. The Mahogany seed extract is high in lipids. Thus, it was speculated that the healing effect of mahogany seed extract on gastric ulcer could be attributed to the phospholipid and long-chain unsaturated fatty acid content of the seed.

## **5.2 Safety**

There was no retrievable evidence on safety of “Natural-Health”, Naturo or “Swietenia Mahogany” from the scientific databases.

US FDA regulates dietary supplements under a different set of regulations than those covering “conventional” foods and drug products (prescription and Over-the-Counter).<sup>6</sup> The Dietary Supplement Health and Education Act of 1994 (DSHEA), defines both terms “dietary ingredient” and “new dietary ingredient” as components of dietary supplements. In order for an ingredient of a dietary supplement to be a “dietary ingredient,” it must be one or any combination of a list of substances which includes an herb or other botanical. *Swietenia mahogany* falls under this category. The website further mentions that the dietary supplement manufacturer is responsible for ensuring that a dietary supplement is safe before it is marketed. However, FDA will take action against any unsafe dietary supplement product after it reaches the market. Generally, manufacturers do not need to register their products with FDA nor get FDA approval before producing or selling dietary supplements. Having said that, the manufacturers must make sure that product label information is truthful and not misleading.

## **5.3 Cost-effectiveness**

No evidence addressing cost-effectiveness of “Natural-Health”, Naturo or “Swietenia Mahogany” retrieved.

## **6. CONCLUSION**

Based on the above review, there was insufficient evidence to support the effectiveness of “Natural-Health”, Naturo or “Swietenia Mahogany”. In fact, there was no evidence retrieved on its safety as well as its cost-effectiveness.

## **7. RECOMMENDATION**

More clinical research are required to provide evidence to support the effectiveness, safety and cost-effectiveness of “Natural-Health”, Naturo or “Swietenia Mahogany” in the treatment of any medical problem it is intended for.

## 8. REFERENCES

---

- <sup>1</sup> Herbal medicine. Retrieved from <http://www.umm.edu/altmed/articles/herbal-medicine-000351.htm> on 11 December 2008
- <sup>2</sup> Herbalism. Retrieved from <http://en.wikipedia.org/wiki/Herbalism> on 11 December 2008
- <sup>3</sup> Swietenia. Retrieved from <http://en.wikipedia.org/wiki/Swietenia> on 11 December 2008
- <sup>4</sup> Mahogany – symbol of strength and endurance. Retrieved from <http://www.forestgeneration.com/mahogany.html> on 11 December 2008
- <sup>5</sup> Bacsal K., Chavez L., Diaz I., et. al. The Effect of Swietenia Mahogani (Mahogany) Seed Extract On Indomethacin-Induced Gastric Ulcers In Female Sprague-Dawley Rats. *Acta Medica Philippina*, c2000; 127-137 (retrieved from Google search on “Swietenia Mahogani” on 12 December 2008)
- <sup>6</sup> Dietary Supplements. Retrieved from <http://www.cfsan.fda.gov/~dms/supplmnt.html> on 12 December 2008



---

## 1. APPENDICES

### 9.1 Appendix 1 - Level of Evidence Table

Level	Study design
I	Evidence obtained from at least one properly designed randomized controlled trial
II-1	Evidence obtained from well-designed controlled trials without randomization
II-2	Evidence obtained from well-designed cohort or case-control analytic studies, preferably from more than one centre or research group
II-3	Evidence obtained from multiple time series with or without the intervention. Dramatic results in uncontrolled experiments (such as the results of the introduction of penicillin treatment in the 1940s) could also be regarded as this type of evidence
III	Opinions or respected authorities, based on clinical experience; descriptive studies and case reports; or reports of expert committees

*Source: US/CANADIAN PREVENTIVE SERVICES TASK FORCE (HARRIS 2001)*