



**About the Author**

Dr. Nozlana Abdul Samad is a researcher and lecturer of University of Science, Malaysia.



## *LABISIA PUMILA* - A SOURCE OF MEDICINE

### Introduction

The significance of phytochemical work increases rapidly when certain compounds inside a plant is shown to possess certain biological activity. Phytochemical investigation provides data on the chemical constituents of the plant itself but many isolated natural products have not undergone any biological testing. Therefore, bioassays on crude plant extracts are usually carried out in order to determine the biological activity of the plant itself.

The use of *Labisia Pumila* as an important medicinal plant has been known since antiquity to treat many ailments. The plant has commonly been used for gynecological problems such as to quicken and facilitate childbirth, as a post-partum medicine, to treat flatulence, dysentery and menstruation problem. It has also been used to treat dysmenorrhoeal, gonorrhoea and hemorrhoids (Burkill., 1935). Women

often take the plant alone or by mixing with other herbs. A number of studies have proven the therapeutic effects of this plant as previously reported in ethno botany (Zainon, 2000).

*Labisia pumila* has been reported to contain phenolic compounds. Phenolic compounds may have potent antioxidant activity and also anti-carcinogenic, anti-bacterial, anti-viral or anti-inflammatory activities (Norhaiza et al., 2009). Keeping this in view, the present study was initiated with an aim to identify the potential biological activity of this plant. We have chosen a bioassay system to evaluate the anti-angiogenesis activity of *Labisia pumila* as this assay has not been conducted on this particular plant before.

### **Botanical aspects of *Labisia pumila***

*Labisia pumila* is a plant from the family of Myrsinaceae. It was previously known as *Labisia pothoina*.

**Please cite this article:**

Nozlana Abdul Samad. (2018). *Labisia Pumila* -- A Source of Medicine. *Australian Herbal Insight*, 1(1), pages 4–6. Received June 6, 2018; Accepted June 29, 2018; Published online July 1, 2018.

The plant has also been called 'seluruh fatimah, rumput siti fatimah, akar fatimah, kunci fatimah, rumput palis, mata pelanduk rimba, pokok pinggang, tadah matahari and bunga belangkas hutan'. Most of the Malays in Malaysia refer to it as 'Kacip Fatimah' (Burkill., 1935).

*Labisia pumila* is a sub-herbaceous plant with rooting from the stem and commonly found in the lowlands and hill forests of Peninsular Malaysia at an altitude between 300 and 700 m (Burkill., 1935, Zhari et al., 1999).

The leaf is dark green in color on adaxial and light green in color on abaxial. The leaves are few, normally 4-12 and positioned as pointing upward. The leaf apex has a broad or narrowing form of wing or often absent. The leaf base is tapered or broad rounded. The whole leaf may grow about 5-35cm long and 2-8cm wide. The petiole is relatively short, about 2-8cm in length but may grow up to 12 cm long (Zhari et al., 1999).

The flowers are borne in a very small size in pink or white colour. The flower's petals are wrapped round and enclosing the stamen. Plant root is relatively tough and woody with few secondary roots and long primary roots (Zhari et al., 1999).

Most traditional medicine practitioners classify this plant by referring to its leaf's shape and colours (Stone, 1988). There are three varieties of *Labisia pumila* which are *L. pumila* var *alata*, *L. pumila* var *pumila* and *L. pumila* var *lanceolata*. These

three varieties differ in their leaf stem. *L. pumila* var. *alata* has a short leaf stem which is about 2-8cm with broad wing, var. *pumila* with short leaf stem which is also about 2-8cm but small wing and for var *lanceolata*, it has long leaf stem (5-13cm) without wing (Stone, 1988).

#### The traditional uses of *Labisia pumila*

A mixture of cream that contains *Labisia pumila* leaves and coconut oil has been used topically on babies to reduce stomach discomfort (Indu Bala and Ng, 2000).



Figure 1  
*Labisia pumila*  
variety  
*alata*  
leaves

Traditional practitioners usually use only two varieties of *L. pumila*, i.e variety *alata* and variety *pumila* whereas variety *lanceolata* is believed to have less effect on health. Therefore this scientific investigation concentrated on these two varieties of *L. pumila* (Jamia et al., 1999)

#### Ethnobotany information of *Labisia pumila*

Natives in Pahang, Perak and Kelantan and Bajau are known to use a water decoction of *L. pumila* (Zainon et al., 1999). They normally use the root part or the mixture of the whole part of the plant itself. They use this kind of tonic as an after child birth medicine (Chan et al.,

1995).

In Sarawak, natives often prepare water decoction of this plant combined with other herbs and used to maintain women's health (Runi, 2001).

#### Biological Activity of *Labisia pumila*

The biological activity that has been reported on this plant describes the beneficial and adverse effect of this plant on living matter.

Ethanol extract and water extract of the leaf and the root part of *Labisia pumila* var *alata* and var *pumila* have shown no significant oestrogenic activity on recombinant yeast cell (Jamal et al., 1998) and Ishikawa- var 1 in vitro (Jamia et al., 1999).

Methanolic extract of the plant has shown to restrain 58% of the Platelet Activating Factor binding in vitro (Ibrahim et al., 1996) compared to the positive control which gave 85% inhibition with the IC<sub>50</sub> value being 2.56 x 10<sup>-7</sup> M. The extract was further fractionated into 3 fractions namely diethyl ether, butanol and water. Each of these fractions gave different percentage of inhibition. Diethyl ether gave 9% inhibition, butanol gave 25% inhibition and water gave 5% of inhibition (Ibrahim et al., 1996). This research suggests that the methanol extract of *Labisia pumila* may have anti-inflammatory activity and supports the use of it by traditional practitioners to treat menstrual pain and other inflammatory related illness (Ibrahim et al., 1996).

Antibacterial study of *Labisia pumila* crude extract showed inhibition of the growth of *Pseudomonas aeruginosa*, *Bacillus*

but this particular extract did not show any potent effects on *Proteus mirabilis*, *Streptococcus faecalis*, *Salmonella typhi* and *Escherichia coli* (Chan et al., 1995).

*P. aeruginosa* can cause urinary tract infection (UTI) and septicemia and therefore this plant may have the potential to treat bacterial infection of the blood and urinary tract. It may also help women after child birth to reduce the risk of this infection (Chan et al., 1995).

### The toxicity and side effects of *Labisia pumila*

Aqueous extract of this plant was found not to have any toxicity towards animal reproductive system (Ezumi et al., 2005). On the contrary, a study demonstrated the presence of toxic compounds in the petroleum ether extract of *Labisia pumila*. The extract caused sinusoidal degeneration of liver with concomitant inflammation of the renal tubules during day 1–7 post-partum in xenograft model (Effendy et al., 2006). However, a recent study on winstar rats revealed that low dose of the plant extract was not associated with toxicity (Singh et al., 2009).

The fresh plant of *Labisia pumila* may cause skin allergies. Dermatological testing has proven that the variety *alata* may cause dermatitis to those with hypersensitive skin (Jamia et al., 2001).

### References

- Burkill, I. H. (1935) A Dictionary of the Economic Products of the Malay Peninsula. Crown Agents, London.
- Zainon, A. S., Nik Musa'dah, M., Ismail, M. & Wan Fadhilah, W. Z. A. (1999) Ethnobotany of Medicinal Plants at Pos Lanai, Lipis Pahang. Proceedings Of The Seminar 'Interdisciplinary Approaches In Natural Products Research', 35-42.
- Norhaiza, M., Maziah, M. & Hakiman, M. (2009) Antioxidative Properties of Leaf Extracts of A Popular Malaysian Herb, *Labisia Pumila*. Journal Of Medicinal Plant Research, 3, 217-223.
- Burkill, I. H. (1935) A Dictionary of the Economic Products of the Malay Peninsula. Crown Agents, London.
- Zhari, I., Nurhayati, I. & Jaafar, L. (1999) Herba Labisiae. Malaysian Herbal Monograph, 1, 45-48.
- Indu Bala, J. & Ng, L. T. (2000) Herbs: The Green Pharmacy of Malaysia. Vinpress Sdn Bhd., Kuala Lumpur, 53-54.
- Stone, B. C. (1988) Notes on the Genus *Labisia* Lindl. (Myrsinaceae). Malayan Nature Journal, 42, 43-51.
- Jamia, A. J., Houghton, P. J. & Milligan, S. R. (1999) Kacip Fatimah, A Malay Traditional Herb for Pregnant Women. Phytochemicals And Biopharmaceutics From The Malaysian Rain Forest, 166-176.
- Jamal, A. J., Houghton, P. J. & Milligan, S. R. (1998) Testing of *Labisia Pumila* for Oestrogenic Activity Using Recombinant Yeast Screen. Journal Of Pharmacy And Pharmacology, 50 (Supplement), 79.
- Ibrahim, J., Young-Hwa, K., Dae-Yeon, S. & Byung, H. H. (1996) Inhibitory Effects of Malaysian Medicinal on Platelet-Activating Factor (PAF) Receptor Binding. Natural Product Sciences 2, 2, 86-89.
- Ezumi, W. M. F., Amrah, S., Mohamad Nasrul, I., Mohd. Suhaimi, A. W. & Syed Mohsin, S. J. (2005) Evaluation of the Teratogenicity of Aqueous Extract of *Labisia Pumila* Var. *Alata* In Rats Malaysian Journal Of Medical Sciences 12(2), 13-21.
- Effendy, A. W. M., Siti Nur-Thahirah, J., Hussin, J. M. & Zamri-Saad, M. (2006) The Side Effects of Kacip Fatimah Extract on Liver and Kidney of White Rats. Journals Of Sustainability Science And Management, 1, 40-46.
- Singh, G. D., Ganjoo, M., Youssof, M. S., Koul, A., Sharma, R., Singh, S., Sangwan, P. L., Koul, S., Ahmad, D. B. & Johri, R. K. (2009) Sub-Acute Toxicity Evaluation of An Aqueous Extract of *Labisia Pumila*, A Malaysian Herb. Food And Chemical Toxicology, 47, 2661-2665.

Submit your next manuscript to AUSTRALIAN HERBAL INSIGHT published by EMAN Research.

- Convenient online submission
- Thorough peer review
- No space constraints or color figure charges
- Immediate publication on acceptance
- Inclusion in Australian National Library and Google Scholar
- Both Open (80-100% subsidized APC by ER) & non-open access option

Submit your manuscript at  
<https://ahi.emanresearch.org>

**emanResearch**