FARMERS' BULLETIN

A Publication of the Department of Agriculture, Sarawak (May - June 2005) No. 433

Orthosiphon stamineus

Scientific name	:	*Orthosiphon stamineus, Benth*
Synonym	:	*Ocimum aristatum, B1., Orthosiphon aristatus (Blume) Miq.*
Common name	:	Java tea
Local name	:	Misai kucing, Kumis kucing
Family	:	Lamiaceae

Introduction

This medicinal herb has been used for many centuries in Southeast Asian countries like Indonesia and Malaysia. It is appreciated for treating ailments of the bladder and kidney. Misai kucing began to interest researchers as early as the beginning of the 20th century when this plant was introduced to Europe where it became a popular herbal tea. In Malaysia, it is also appreciated for its elegant unique flowers and is commonly seen growing in many home gardens.

continue....

Plant description

Misai Kucing is a herbaceous shrub, which grows to a height of 1.5m. The leaves are arranged in opposite pairs. They are simple, green, and glabrous with a lanceolate leaf blade and a serrate margin. The leaf apice is acuminate with an acute leaf base. The petiole is relatively short, about 0.3cm in length and reddish purple in color. The stem is quadrangle, reddish in color, erect and branches profusely. The flowers are borne on verticils about 16cm in lenght. The terminal in florescence is borne on a maroon pubescent peduncle. Bracts are green, minute (1-2mm), caudiform in shape and two bracts normally holds a cluster of 5 flowers. The flowers are campanulate in shape, white to bluish in color with long far-exerted filaments, making the flowers look like cat's whispers. The flowers are hermaphrodite in nature, about 6.2cm in length (including the stamens) with a irregular flower symmetry. There are two calyx lobes, which are greenish red in color, measuring about 6mm in length and partially gamosepalous. One of the calyx margin is toothed and the other one entire, both covered with minute white hairs. There are two corolla lobes, which are partially gamopetalous and covered with minute hairs. The corollas are light violet in color with lobes much shorter than the corolla tube. The corollas are bilabiate in shape with fringed margins. The labellum is light violet in color, hairy and pinkish on the under surface. There are 4 stamens, which are inserted near the base of the corolla tube. The stamens are unequal in length, measuring from 4.7cm to 5.2cm. There is a single, central, terete style with a clavate stigma.

Plant habitat

Misai kucing has been cultivated for a long time and is a popular garden plant. In the wild, it can be seen growing along the forest edges, roadsides and wasteland.

Plant growth habitat/cultivation

Misai kucing is easily propagated through 3 or 4 noded stem cuttings. These stem cuttings are obtained from a mother plant of more than 5 months of age. Ideally, the middle portion of the stem is chosen to obtain a higher rate of success in propagation. It is best to avoid choosing shoot tip cuttings. These stem cuttings are propagated in the nursery and then transferred to the field after a period of the month. Misai kucing thrives in well-drained soils in full sinlight. In just about 3-4 months after field transfer the leaves/branches of the plant are ready for harvest. This plant branches more profusely and generally does better with regular applications of organic fertilizers such as chicken dung. Misai kucing is not significantly susceptible to disease but it is quite prune to insect attacks.

Plant part used : Leaves.

Uses in traditional medicine

The plant is believed to have antiallergic, antihypertensive, antiinflammatory and diuretic properties. It is used as a remedy for arteriosclerosis (capillary and circulatory disorders), kidney stones and nephritis. It is alsol used for treating gout, diabetes and rheumatism. In Malaysia, the leaves are used as a diuretic and for treating catarrh of the bladder. A decoction prepared from the plant is used to eliminate stones in the bladder.

Chemical constituents

i) Chemicals with commercial potential: No information available.

ii) Other chemicals: α–and β–carotene, cirsimaritin,cryptoxanthin, 5-hydroxy-6,7,4-tetramethoxyflavone, inositol, myo-inositol, orthosiphon, pillion, rhamnasin, salvigenin, 4,5,6,7-tetramethoxyflavone, isosinensetin, β–zeacarotene; carotenoids, essential oils, flavonoids, glucosides, glycoproteins, minerals, phenylpropanoids, saponins, terpenoids.

Pharmacology

Orthosiphon stamineus is reported to possess antifungal, antiinflammatory activities. It also exhibits considerable antibacterial activity (mininal inhibitory concentration = 7.8-23.4mg/ml). Alcoholic and water extracts of misai kucing are shown to have a significant diuretic activity in rats.

Clinical trials

Clinical studies show that the diuretic effect of misai kucing has no influence on 12 and 24 hours urine output or on the sodium excretion.

Towards commercial production

Currently, misai kucing is categorized as one of the most potential herbs to be commercialized in Malaysia. This is mainly due to its easiness to cultivate and its validated health benefits especially in treating ailments associated with kidney and the urinary system. A few products of misai kucing has entered the local market, the more popular one being Misai Kucing Plus.

WHITEFLIES (Aleyroidids) IN GUAVA

Whiteflies occur on the undersurface of leaves of a wide varieties of plants and can be serious pests of crops, orchards and ornamentals. The immatures (nymphs) produce honeydew that coats plants and fruits. The black sooty mold fungi develop on the honeydew causes further injury to the plants and economic losses.

Remains of cottony wax produced by whiteflies on guava leaves.

Adult

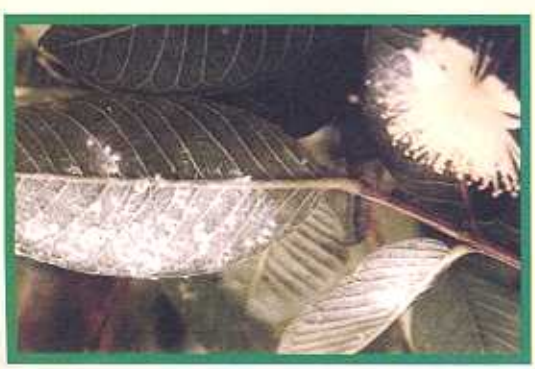
The adult whiteflies measure 2-3 mm in length. The 2-pairs of wings are white from which the common name 'Whitefly' is derived. The 2-pairs of wings are about equal sizes and cloudy white with simple venation. Both body and wings are coated with fine whitish powder. The long 3-segmented beaks is used for sucking.

Eggs are deposited by females on leave attached by pedicels while others lay them in whorls. During the protracted egg stage, the egg can absorb fluid or food from the host plants.

Nymph

Nymphs only posses legs in the first instar. Soon after hatching they became attached to the host plants in one place and lose the legs. All instars are covered by whitish wax.

'Pulal case' is main character for identification of whiteflies. They are flat to slightly convex oval and covered by cottony wax also.



Control Measures

A. Cultural Method

1. Prohibit introduction through new planting materials.
2. Prune and burn infected portion at first sign of infestation.

B. Chemical Method

1. Albolineum** (White oil) at 5 tablespoons per gallon mix with 2 tablespoons of Malathon, apply weekly for 4 times.

   ** Albolineum is safer to use in home garden than the other 2 chemicals mentioned below.

2. For field planting, several pesticides are known to be effective to control whiteflies when applied correctly and regularly:-

   (a) Endosulfan* (Thiodan) at 0.5% a.i. or 2 tablespoons per gallon water. Repeat 3 times at 10 days interval.

   (b) Diazinon* (Basudin) at 1 tablespoon per 3-gallon water. Repeat 3 times at 10 days interval.

   *These chemicals are highly poisonous, therefore necessary precautions should be taken when using them in the field.

   For effective control, it is necessary to target spray the undersurface of the leaves and ground below.

Remains of cottony wax produced by whiteflies on guava leaves.