

Biology of Mile—A Minute Weed (*Mikania micrantha* H. B. K.), an Alien Invasive Weed in Kerala

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Mikania micrantha H. B. K., a fast spreading herbaceous alien weed, is a serious menace in agricultural and non-agricultural areas of Kerala. Now, it creates problem in crops like rubber, coconut, arecanut, cocoa, coffee and in annual crops like pineapple, banana and tapioca. Study on biology of mikania was undertaken at College of Horticulture, Kerala Agricultural University, Thrissur, during 1995 to 1999. A survey on infestation of mikania was conducted in different parts of Kerala to understand biology in natural field condition. Average seed production capacity of a single mikania was estimated by counting the number of seeds per head, number of heads per inflorescence and number of inflorescence per plant. Longevity of seeds was determined by conducting germination tests on moist filter paper. Germination percentage was determined at monthly intervals for one year from the date of collection of seeds. Reproduction of mikania from seeds and cuttings from different parts of stem, sown or planted at different depths in soil were also studied.

Mikania is a fast growing herbaceous perennial climber. The top portion of mikania plant dries out every year at the onset of summer and regenerates during April-May. When it grows near the canals, ponds and other waterbodies where moisture is plenty, it remains green even during the summer season. Perennating nature of mikania is due to the presence of tuberous rootstocks. Runner vine of mikania has capacity to produce roots and shoots from the nodes. The plant can overcome tillage operations or sickling, which will lead to fragmentation of stem into small pieces. Each node is capable of regrowing as a new plant. Inflorescence is an umbel of heads. In a single inflorescence, there are 30 to 40 composite flowers or heads. Each flower head has four flowers. Colour of the petal is white.

Achene is less than 2 mm long with silky white pappus hairs. Studies on floral characters revealed that the characters of the specimen collected from different parts of the state conform to the characters described for *Mikania micrantha* by Choudhury (1972). Thus, the species of mikania present in Kerala is identified as *Mikania micrantha* H. B. K.

In the natural field condition, seeds of mikania germinated soon after receipt of the first rainfall during April. Flowering of mikania commences in October. After flower opening, it takes 9-12 days for seed maturity. Single mikania produced an average of 357 inflorescence with 32 flowers (four seeds per head) per inflorescence. Average seed output was 45812 seeds per plant with a range of 35520-54720 seeds. The pappus hairs help in wind dispersal. These seed characters help in the quick spread of mikania. The high seed production capacity with adaptations for wind dispersal is the main reason for the weediness of mikania.

Establishment of mikania decreased with increase in depth of planting. Maximum establishment was for the cuttings from the basal portion of stem at zero depth of planting. Lack of

Table 1. Germination (%) of seeds of mikania after different periods of storage

Duration of storage	Germination (%)
Fresh seed	80
1 month	70
2 months	60
3 months	48
4 months	45
5 months	35
6 months	5
7 months	5
8 months	4
9 months	4
10 months	Nil
11 months	Nil
12 months	Nil

germination at deeper planting might be due to the lack of light and sufficient oxygen. Ability of mikania to produce sprouts from different portions of stem when planted at surface or at deeper depth shows the aggressiveness of the weed. The results indicate that this weed cannot be controlled by ploughing the field as it is practically impossible to bury all the plant parts to deeper soil depth more than 5 cm, from where regrowth may not occur. Maximum germination for the freshly collected seeds and decline in germination per cent upon storage (Table 1) showed that the seeds will be viable only upto the next favourable season. Mikania produced large number of seeds, but fortunately 100% of the viability was lost by nine months. The seeds did

not show any dormancy period. Seeds on the soil surface gave 35% germination. Even though the percentage of seed germination is not very high. Output of seeds ensures the propagation of the species. Due to the ability of the seeds to be dispersed by wind, seeds are distributed to distant places. If a few of these seeds germinate, the mikania seedlings produced can get established on the new area because of the capacity for efficient vegetative propagation.

REFERENCE

- Choudhury, A. K. 1972. Controversial mikania (climber) – A threat to the forests and agriculture. *Indian Forester* 98 : 178-183.