

COMUNICAÇÃO CIENTÍFICA

WINGED BEANS, *Psophocarpus tetragonolobus* (L.) DC.
in SÃO PAULO, BRASIL - PRELIMINARY OBSERVATIONS¹

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RESUMO

Observações preliminares sobre o feijão-alado *Psophocarpus tetragonolobus* (L.) DC em São Paulo, Brasil

De várias sementeiras feitas com sementes marrons obtidas no Centro Internacional de Agricultura Tropical, Colômbia, em 1977/78 puderam ser feitas as seguintes observações:

1. Semeadas em Dezembro, as sementes germinaram em 8 a 10 dias; as plantas floresceram em março, desenvolvendo-se vagens que alcançaram até 30 cm de comprimento. Deixadas as plantas, elas tornaram a florescer em fins de Setembro.

2. Um número apreciável de nódulos de bactérias fixadoras de nitrogênio foi observado nas raízes.

3. Sementes que germinaram em vasos com solo infestado deram origem a plantas cujas raízes apresentaram galhas grandes, de 4 vezes o diâmetro da raiz, de *Meloidogyne incognita* (Kofoid & White, 1919) e outras exibiram galhas pequenas de *M. javanica* (Treub, 1885).

4. Danificando a folhagem, foram observados os seguintes insetos:

- lagartas de *Podalia* sp. (Lepidoptera, Megalopygidae).
- trips das espécies *Caliothrips phaseoli* (Hood, 1912) e *Echinothrips mexicanus* Moulton, 1911 (Thysanoptera, Thripidae).
- adultos de *Diabrotica speciosa* (Germar, 1824) (Coleoptera, Chrysomelidae).
- percevejos do gênero *Acrosternum* (Hemiptera, Pentatomidae).

5. Causando danos à folhagem, os ácaros:

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- ácaro branco ou tropical, *Polyphagotarsonemus latus* (Banks, 1904) em tempo quente e úmido.
- ácaro rajado, *Tetranychus urticae* (Koch, 1844), em tempo quente e seco.
- ácaro vermelho, *Tetranychus desertorum* Banks, 1900.

The winged bean is a traditional legume of Papua New Guinea and Southeast Asia, being a backyard and market crop. Its value as a "multi-purpose" crop and source of protein has been recognized recently and this plant came to the attention of the U.S. National Academy of Sciences which published a rather extensive report on the winged bean (1975).

Research on different aspects of this plant is under way in several institutions around the world and not much is known about winged bean pests.

In 1977, while visiting CIAT, Centro Internacional de Agricultura Tropical, Cali, Colombia, Dr. Kenneth O. Rachie provided us with brown seeds of winged beans. These were planted, during the summer 1977/78, in the courtyard of the Department of Zoology, Escola Superior de Agricultura "Luiz de Queiroz", in Piracicaba, Sao Paulo and permitted the following observations:

1. The seeds germinated in ca. 8 to 10 days in December 1977 and the plants grew vigorously on trellises 2,5 meters high. The first flowers were observed at the end of March 1978. No insects were seen to visit the flowers. Plenty of pods developed; when they reached about one half of their full length, part of them were used as a green vegetable. The remaining were allowed to develop for seed production. Tubers were harvested late in May; they reached about 3 cm in diameter and up to 15 cm in length. Plants that were left shed most of their leaves during the dry winter, started growing again in August and flowered in late September. A considerable number of nodules of nitrogen fixing bacteria, measuring from 0,5 to 3 cm in diameter, were observed on the roots.

2. Four winged bean seeds were put to germinate in each of four 10 liter vases containing soil infested with two species of nematodes; 10 days after germination the soil was inoculated again with nematodes. Plants infested with *Meloidogyne incognita* (Kofoid & White, 1919) Chitwood, 1949 presented a few, but rather large galls; these measured about 4 times the diameter of the root. *Meloidogyne javanica* (Treub, 1885) Chitwood, 1949 induced a few small galls.

3. Insects observed to feed on the winged bean plants:

3.1. In January 1978 a heavy attack of caterpillars of *Podalia* sp. (Lepidoptera, Megalopygidae) destroyed large part of the foliage. This insect has been reported as a pest in Brasil from coffee, roses, guaves, persimmon and citrus (MARICONI & CASTRO, 1961). This insect was also observed feeding on *Acalypha*, sugarcane, *Lantana camara*, *Croton* and *Sorghum halepense* plants grown in the same courtyard.

3.2. During January and February 1978 two species of thrips were noticed in large numbers on the leaves of winged beans, mainly on the upper leaf surface: *Caliothrips phaseoli* (Hood, 1912) and *Echinothrips mexicanus* Moulton, 1911 (Thesanoptera, Thripidae). *C. phaseoli* was the most abundant species. Their feeding resulted in small whitish spots along the veins of the leaves; no apparent leaf drop.

3.3. Two species of Coleoptera, Chrysomelidae, Galerucinae were observed feeding on the leaves of winged bean plants; one was identified as *Diabrotica speciosa* (Germar, 1824). They caused holes in the leaf limbs.

3.4. One species of Hemiptera, Pentatomidae was seen feeding on the apical parts of the plants, *Acrosternum* sp. (near *impicticornis*). No visible damage was observed.

4. Mites:

4.1. During a humid and hot period in January 1978, a considerable attack of the broad mite, *Polyphagotarsonemus latus* (Banks, 1904) (Prostigmata, Tarsonemidae) was observed, causing intense bronzing and distortion of the apical buds and leaves. In two weeks this mite partially destroyed the plants and greatly reduced flowering and pod and seed production. The small new infested leaves also showed a necrosis of their borders.

4.2. The common two spotted spider mite, *Tetranychus urticae* Kock, 1844 (Prostigmata, Tetranychidae) developed populations during a dry period in February, attacking mainly the older and median leaves, causing them to drop prematurely. Two plants, kept out of the reach of rain, were completely defoliated.

4.3. *Tetranychus desertorum* Banks, 1900, a carmine spider mite, also developed well on winged bean leaves, but, was lesser damaging.

DISCUSSION

Winged beans grow satisfactorily during the summer in the State of São Paulo, Brasil (latitude of the Tropic of Capricorn, 23-24°S), producing pods, seeds and tubers.

This plant finds Nitrogen fixing bacteria in the soils of the mentioned area, their roots exhibiting large nodules.

Winged beans will be attacked by several insects; some of them may cause heavy damage to the aerial part of the plant. It also serves as a host for root knot nematodes. This plant also picks up several species of plant feeding mites which, under favorable climatic conditions, may impair growth and production. Coloured transparencies were taken from the insects and mites and damaged plants.

An account on the insect and mite pests of winged beans and their control in Malaysia and Papua New Guinea can be found in PRICE (1978).

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