

## Second Laureate Applied Research

**Project Title:** Comprehensive Study of Witches Broom Disease of Lime in Southern Iran

**Executive Organization:** Plant Virology Research Center, College of Agriculture, Shiraz University

**Researcher:** Mohammad Salehi Abarghouei (Ph.D.)

**Collaborators:** Abdolnabee Bagheri, Mohammad Mehdi Faghihi and Hamed Hassanzadeh



### Abstract:

Mexican lime is one of the most economically important horticultural crops in southern Iran. Phytoplasmal witches'-broom disease of lime (WBDL) is the most serious threat to Mexican lime industry and to other susceptible citrus species in this region. In the present study the leafhopper *Hishimonus phycitis* was proved for the first time as the vector of WBDL phytoplasma. It was also found that *H. phycitis* preferred witches'-broom affected branches for reproduction. This leafhopper disappears from lime orchards of southern Iran from late spring to early fall but reaches the highest population during late winter to early spring. *Solanum nigrum* and *Catharanthus roseus* were found as natural herbaceous hosts of WBDL agent. Resistance of 150 citrus germplasms to WBDL phytoplasma was evaluated. Among resistant species Persian lime was found as a suitable alternative to devastated Mexican lime. The mode of WBDL phytoplasma spread through Mexican lime trees was studied. The results showed that this phytoplasma spreads sequentially from inoculation point to main stem, root, young leaves and then to other parts of the lime seedling. This study also showed non-propagative passage of WBDL phytoplasma through the phloem of resistant citrus species.

