عنوان مقاله:

Identification of yeast and yeast-like symbionts associated with Hishimonus phycitis (Hemiptera: Cicadellidae), the insect vector of lime witches' broom phytoplasma

محل انتشار:

Journal of Crop Protection, دوره 6, شماره 4 (سال: 1396)

تعداد صفحات اصل مقاله: 8

نویسندگان:

Chamran Hemmati - *Department of Entomology, Faculty of Agriculture, Tarbiat Modares University, Tehran, Iran*.

Saeid Moharramipour - *Department of Entomology, Faculty of Agriculture, Tarbiat Modares University, Tehran, Iran*.

Majeed Askari Siahooei - *Plant Protection Research Department, Hormozgan Agricultural and Natural Resources Research and Education Center, Agricultural Research Education and Extension Organization (AREEO), Bandar Abbas, Iran*.

Abdoolnabi Bagheri - *Plant Protection Research Department, Hormozgan Agricultural and Natural Resources Research and Education Center, Agricultural Research Education and Extension Organization (AREEO), Bandar Abbas, Iran*.

Mohammad Mehrabadi - *Department of Entomology, Faculty of Agriculture, Tarbiat Modares University, Tehran, Iran*.

خلاصه مقاله:

Witches' broom disease of lime (WBDL) is a lime disease that has destroyed several citrus orchards in Oman, United Arab Emirates and Iran. WBDL is caused by a bacterium "Candidatus Phytoplasma aurantifolia" which is spread through the citrus orchards by a leafhopper, Hishimonus phycitis (Distant) (Hemiptera: Cicadellidae). Leafhoppers are associated with symbiotic microorganisms which provide them with essential amino acids lacking in their diets. Yeast-like relationships with insects are known as common and obligate symbiotic relationship. A prerequisite for the development of future strategies for the symbiotic control of insect pests and insect-vector competence is the identification of insect-associated yeast-like symbionts. In the present study, yeast-like symbionts housed in H. phycitis were investigated in insects collected from ۱۳ districts of citrus orchards distributed in southern Iran (Hormozgan, Kerman, Sistan-Balushestan and Fars provinces). Insects were collected from infected lime trees by a D-Vac and stored at -۲۰ ºC up to the DNA extraction. Total DNA was extracted and PCR was conducted with specific primer sets targeting ۱۸S rRNA and ۲۶S rRNA genes of the symbionts. Results revealed that the vector harboured two yeast symbionts, namely Yeast like symbiont of H. phycitis (Hp-YLS)and Candida pimensis,with a similarity of (۹۸-۹۹%) to those reported from the other Cicadellids. These results substantiate the association of these two endosymbiotic microbiota with H. phycitis which may suggest their ecological interactions. To establish any endosymbiotic relationship and probable interfering in pathogen transmission, further studies are needed.

کلمات کلیدی:

Hishimonus phycitis, yeast-like symbionts, Candida pimensis