

SCIENTIFIC NOTE

**Preliminary Data on Settlement and Adaptation of the Predator,
Cryptolaemus montrouzieri Mulsant (Coleoptera: Coccinellidae)
in Colonies of Mealy Bugs on Citrus Trees in the Syrian Coast**

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(Received: November 25, 2009 and Accepted: December 6, 2009)

Cryptolaemus montrouzieri Mulsant (Coleoptera: Coccinellidae) is an efficient predatory species against the mealy bugs of Pseudococcidae and one of the most successful and common predators used, since 1892 when Koppel imported it from Australia and introduced it to California in the United States for controlling mealy bugs on citrus. It is believed that the original habitat of this predator is the Australian region, where the distinct coastal climate is moderate and fulfills its environmental requirements such as weak tolerance to cold and its need to high humidity associated with a warm moderate weather (Ahmad, 1961).

C. montrouzieri was used successfully in Florida and California in the USA, Japan, Finland, New Zealand, South and North Africa in Kenya and Tanzania, Morocco, Egypt, and in Europe; Spain, Italy, France and former Soviet Union. (Rether *et al*, 1989). Countries that are characterized by a harsh winter usually propagate the predator under laboratory conditions due to its low tolerance for cold and low humidity, as well the presence of ants associated with the mealy bugs that feed on their honeydews and other sugary secretions, that significantly reduce the activity and effectiveness of the predator, especially in areas where the predator could not adapt itself to them. For example, Flanders (1954) in Italy, reported that presence of certain species of ants among the colonies of the mealy bugs led to reduce the activity and efficacy of the predator. As well, the predator could not adapt itself to the environment of the Soviet Republic of Azerbaijan due to the low relative humidity and very cold weather in October and November, which consequently led to death of large numbers of the predator. Remaining individuals failed to produce tolerant strains to the cold and the low humidity, with an exception of one case in the Black Sea region on the coast of the Caucasus, where it was able to overcome this obstacle and be able to develop through the winter. Therefore, urgent needs arose for mass rearing of *C. montrouzieri* and releasing it periodically in the new habitats (Slivestri, 1939 and Aslan, 1990).

C. montrouzieri was introduced to Syria from Turkey in June 1995 and was reared at Lattakia Center for Rearing and Applications of Natural Enemies, Agricultural Department of Lattakia, Syria, as it is located at a semi-wet region. Rearing program of the predator in Syria aims to mass rear the predator and release it periodically during the season (Al-Khateeb and Rai, 2001; Al-Khateeb and Aslaan 2007).

Monitoring and following-up the colonies of mealy bugs deployed on citrus orchards, open fields and gardens in the city of Lattakia on the Syrian coast during the period 2006-09 led to detect the presence of the introduced *C. montrouzieri* in places away from the releases' sites. As well, over-wintered adults of the predator were recorded in four sites within the colonies of the mealy bugs on citrus trees, in the city of Lattakia and in sites received no releases of the predator. This indicates that it was able to deploy and move to new places and sites, particularly those characterized by intensive infestation of the pests, thus seeking its settlement and survivorship over winter seasons. Number of the predator's larvae reached 5-6 larvae and/or 6-7 pupae per a single leaf (Figs. 1-3), in the sites that had not received any releases of the predator. Such data confirm its settlement, adaptation and dispersal which indicate that the adults could feed, mate and lay eggs, giving 2-3 generations, without need for further releases.

Research team is currently pursuing the investigation, monitoring and recording the continuity of the predator's adaptation and settlement in the Syrian coast.