Second Laureate
Applied Research

- **Research Work Title: Performance and behavioral improvement of honeybee colonies in nongovernmental apiaries by using the Iranian bred queens**
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Abstract:

Due to behavioral and biological characteristics of honey bee and its dependence on environmental factors, most appropriate breeding strategy is to use the native race in different regions of the world. Iranian honey bee has lived in Iran million years before the humans. So the Iranian honeybee breeding was selected as a main strategy of beekeeping industry of Iran. In the first step, survival and three different populations of Iranian honeybee were proved using morphological and molecular characteristics. Iranian honeybee breeding project was started in Tehran, Markazi, and Isfahan and Qazvin provinces in 1998. In this study honey production, swarming and defense behavior were evaluated on 5000 Iranian native population of honeybee colonies and then the 20 % of the superior colonies were selected and moved to Animal Science Research Institute. Afterwards, evaluation and selection of superior colonies (consisted of 40 drone producer and 100 mother colonies) were done during 14 generations every year for establishing the next generation. According to the results, the mean of first three generations and last three generations showed that the queen cell number was decreased from 1.59 to 0.08 and stings number was decreased from 13.96 to 1.057. In the other words, these traits have improved more than 10 times during the 14 generations. These comparisons revealed an increase about 3 times in honey production. The results demonstrated that the genetic and phenotypic trends of honey production, swarming behavior and defensive behavior in the honeybee colonies were desirable during the 14 generations. In this study performance of the bred queens and control queens were compared in private apiaries. The results indicated that the genetically improved queens had better performance than control queens in swarming, defensive behavior and honey production.