



Abstract Book

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First International Agricultural Technology Conference *"Innovative Agriculture for Food Security"*

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Sustainable improvement of agroecosystems through monitoring of Mediterranean bee subspecies and their resilience to climate change

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Beekeeping supports thousands of people in the countries of the Mediterranean basin thanks to the activity of many native subspecies of honeybees, which have evolved over thousands of years in the Mediterranean as a result of natural selection. It is expected that all actions that promote the protection of this invaluable genetic heritage will have a positive impact not only on beekeeping production, but also on agricultural production and, consequently, on increasing food availability, thus contributing to effectively solving the problem of food, economic and sustainable security. However, climate change can directly and indirectly affect the performance and survival of honeybee populations. This concern is particularly relevant in the Mediterranean, where drought periods are expected to become increasingly frequent and long, reducing the potential for beekeeping production as well as pollination efficiency and agricultural production potential. Unfortunately, our ability to deal with the problems of an organism subjected to rapid environmental changes is limited, due to the poor understanding of the adaptation mechanisms developed by different Mediterranean subspecies during evolution; that is, there is a lack of baseline knowledge to design future conservation and enhancement programs aimed at preparing bee stocks for environmental changes. It is in this context that the MEDIBEES project arose, whose main objectives are: (i) to study the genetic heritage of the nine subspecies of bees mentioned above (Apis mellifera intermissa, Apis melliffera sahariensis, Apis mellifera mellifera, Apis mellifera ruttneri, Apis mellifera syriaca, Apis mellifera iberiensis Apis mellifera ligustica, Apis mellifera carnica, Apis mellifera meda)., (ii) to understand the molecular bases and mechanisms of their adaptation to different environmental conditions found in the Mediterranean, (iii), assess its conservation status and (iv) study assess its resilience to climate change. In addition, issues related to (v) the valorization of honey and (vi) beekeeping by-products will be addressed in MEDIBEES, in order to help beekeepers, improve their income and promote the sustainability of beekeeping activity.