

RELATION BETWEEN AGROBIODIVERSITY, WATER AVAILABILITY AND MICROCLIMATE CHARACTERISTICS IN THE OASES OF KEBILI, TUNISIA

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Oases are unique desert locations where plants and trees thrive due to water availability and have been traditionally classified in Tunisia based on their agro-biodiversity levels. Initially, “traditional” oases have three-layeres of date palms, fruit trees, and annual crops, while “modern” oases since their establishment consisted of only date palms. Nevertheless, our results showed that this classification has shifted over time, with “traditional” oases changing towards monoculture due to water constraints, while “modern” are diversifying into poly-culture setups when water is available. Moreover, discussions and interviews with oasis farmers have revealed noticeable variations in date fruit yield and quality traits between these oasis types. To explore these distinctions, two weather stations were established in El Bargho-uthia oasis, located in the Kebili region of southern Tunisia—one in a one-layer plot and the other in a three-layered plot—to assess their microclimate characteristics. Over three years, records on temperature, humidity, wind speed, and gust were collected at 10-minute intervals from each station. Comparative analysis of the records disclosed that three-layered plot exhibited lower temperatures, higher relative humidity levels, and lower wind speed and gusts compared to the one-layered plot. These variations highlight unique microclimate conditions attributed to the dense vegetation in the three-layered plot. Our findings emphasize the significance of conserving and overseeing agro-biodiversity levels within oases. This can potentially foster more favourable microclimates for palm date pollination, health, and fruit quality, enhance the adaptive ability of these unique ecosystems to confront climate change threats and confirms the growers’ insights.