Study of Climatic Diversity and Agroclimatic Potentialities of Ilam Province using Papadakis Indices (Selected Stations, Ilam, Ivan and Dehloran)

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Introduction
Atmospheric conditions are one of the most important and effective variables in agricultural crops production. Being aware of atmospheric conditions and agroclimatic potentialities of different areas, we can make use of resources efficiently and develop the regions. One way for agricultural development is to use lands corresponding with ecological and environmental conditions. Papadakis classification method emphasizes on the agricultural potentialities, crops climatic requirements, and geographic distribution of climates in different regions. Knowledge on the agroclimatic potentialities is very important in optimal crop cultivation, design and management of agricultural system. In this research, Papadakis method is used to investigate the agroclimatic potentialities in three selected stations.

Materials and methods
In this paper, meteorological data of three selected stations in Ilam province has been processed and analyzed through papadakis method. Indices Used in this research are: winter severity, summer heat, nonfrost season length, potential evapotranspiration, water balance and seasonal distribution. Crops’ categories, based on the winter severity and the crops’ sensitivity to cold, are: equatorial, tropical, citrus, avena, triticum and primavera (spring crops). Crops’ categories, based on the summer type and the crops’ heat requirement, are: gossypium (cotton), coffee, oryza (rice), maize, triticum (wheat), polar (tundra), polar (taiga), frigid, andine-alpine. At first, winter type determined by average of the lowest of the coldest month, coldest month average daily minimum and coldest month average daily maximum. Then summer type determined by length of frost free season, average of daily minimum and maximum of the warmest month. Temperature regime defined based on summer and winter types. The next step humidity regime determine with use of such indexes include: annual humidity, potential evapotranspiration, rainfall, leaching.

Results and discussion
This research shows that from the viewpoint of winter temperature conditions the above-mentioned stations have more diversity, as synoptic station of Ilam and Ivan are in avena category and Dehloran station is in Citrus category. From the viewpoint of summer temperature conditions, all of the stations of the region are in cotton category (warm and dry condition). Generally, above stations from the viewpoint of thermal regime are in subtropical and continental group and from the viewpoint of moisture regime are in Mediterranean and desert–Mediterranean group. All studied stations go under two climatic groups: Continental Mediterranean (north region) and hot subtropical desert (south region).

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Conclusions

This paper shows that in high and moderate lands (in Ilam and Ivan stations), there are agroclimatic potentialities for winter grains crops specially (wheat and barley). Winter climatic conditions are appropriate for olive and cotton cultivation based on summer climatic conditions. Dehloran station that is indicator of tropical areas of the province has suitable climatic potentialities for cultivation of agricultural crops such as citrus considering winter severity degree and cotton considering summer heat conditions. The researcher concludes that in low lands of the province (Dehloran station) there are potentialities for cane and rice cultivation if enough water exists.

Key words: agroclimatic potentialities, papadakis, classification, Ilam, winter type, summer type.