World Academy of Science, Engineering and Technology
International Journal of Mathematical and Computational Sciences
Vol:14, No:12, 2020

Hierarchical Cluster Analysis of Raw Milk Samples Obtained from Organic and Conventional Dairy Farming in Autonomous Province of Vojvodina, Serbia

Authors : Lidija Jevrić, Denis Kučević, Sanja Podunavac-Kuzmanović, Strahinja Kovačević, Milica Karadžić

Abstract : In the present study, the Hierarchical Cluster Analysis (HCA) was applied in order to determine the differences between the milk samples originating from a conventional dairy farm (CF) and an organic dairy farm (OF) in AP Vojvodina, Republic of Serbia. The clustering was based on the basis of the average values of saturated fatty acids (SFA) content and unsaturated fatty acids (UFA) content obtained for every season. Therefore, the HCA included the annual SFA and UFA content values. The clustering procedure was carried out on the basis of Euclidean distances and Single linkage algorithm. The obtained dendrograms indicated that the clustering of UFA in OF was much more uniform compared to clustering of UFA in CF. In OF, spring stands out from the other months of the year. The same case can be noticed for CF, where winter is separated from the other months. The results could be expected because the composition of fatty acids content is greatly influenced by the season and nutrition of dairy cows during the year.

Keywords : chemometrics, clustering, food engineering, milk quality
Conference Title : ICSRD 2020 : International Conference on Scientific Research and Development
Conference Location : Chicago, United States
Conference Dates : December 12-13, 2020