ABSTRACT

The importance of machine learning in various fields, especially in health, where food and its nutrients play a crucial role. Despite previous research focusing on the quality of food and nutrients, there has been minimal research on clustering food ingredients based on their macronutrient and micronutrient values. This research proposes a method for clustering food ingredients based on their nutritional value, dividing the dataset into macronutrients and micronutrients to identify similarity clusters and evaluate them. The study aims to use multiple clustering models, including agglomerative clustering and affinity propagation, to enhance flexibility and score evaluation. The research emphasizes the need to provide nutritional information about food for individuals with different nutritional needs and focuses on the critical role of data preparation, modeling, and visualization in clustering food ingredients based on their nutritional value. The study results can determine which algorithm is suitable for each nutrient: macronutrients and micronutrients.

Keywords: clustering, agglomerative, affinity propagation, data preparation, data modeling, data visualization, food ingredients, macronutrients, micronutrients