ABSTRACT

Goat Milk is a foodstuff that contains high nutrients as a source of animal protein. Goat milk contains 88% water with 12% dry matter including fats, proteins, minerals, and carbohydrates. Goat milk is good for consumption by all groups from toddlers, teenagers, and adults, to the elderly because of its nutritional content, texture, taste, and benefits. It is not uncommon for goat milk sellers to take advantage of these conditions to reap higher profits by mixing water or other ingredients. Until recently consumers were unaware of any mixtures in the goat's milk consumed.

From these problems, this study designed a system to detect the presence of mixtures in goat milk through digital image-based using the Active Contour method with the K-Nearest Neighbor (KNN) classification. The data used is 250 images with each class having 30 images as training data and 20 images as test data. The purity level of goat milk is divided into 5 classes, namely 20%, 40%, 60%, 80%, and 100% with a mixture of water.

From the results of the study, an accuracy rate of 92,22% and a computing time of 1,33 seconds with a resize parameter of 400× 320 were obtained. Aretrieval wine between 10 cm to 15 cm does not affect accuracy and metric cityblock is the fastest KNN with an average time of 1.0862 seconds, the hamming method has poor performance in the KNN classification compared to other distance measurement methods

Keywords: *Image processing, Active Contour, K-Nearest Neighbor, Purity of Goat Milk*