Abstract

This study was conducted with the objective of developing a software program, based on image processing and computer vision techniques, as a tool to aid in the monitoring and early detection of clinical manifestations of bovine mastitis. Twenty-four lactating Girolando cows and distinct clinical conditions (healthy, subclinical mastitis and clinical mastitis) were selected. Thermal images of the udder surface of the animals were taken using an infrared thermal imager from the left anterolateral, right anterolateral, posterior and inferior views, four images per animal, totaling 96 thermal images. The images were preprocessed by thresholding, implementing the Hoshen-Kopelman algorithm, to organize the data through the size of the clusters, labeled between 34 and 38 ºC. The developed software program proved to be efficient in classifying thermal images for detecting the clinical pictures of mastitis, with accuracy of 90.9%, specificity of 57.14% and sensitivity of 85.71%; however, it was observed that the angles at which the images were recorded may influence the classification result.
References


Index Terms

Computer Science

Image Processing

Keywords

dairy cattle, computer program, animal health, infrared thermography