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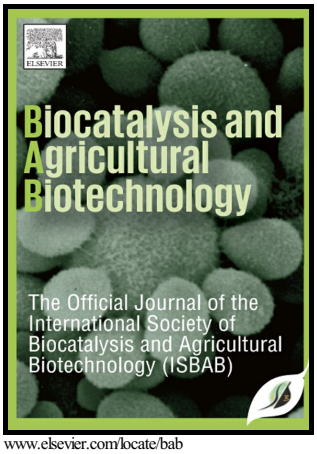

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RESEARCH ARTICLE

A case study on asymmetrical texture features comparison of breast thermogram and mammogram in normal and breast cancer subject

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Abstract:

Aim: *Thermography is noninvasive, nonhazardous radiation free imaging modality. It can be used as a screening tool, if proven the prediction of breast tumor well before. This study attempts a comparison of segmentation of mass region and asymmetrical analysis from mammogram and breast thermogram for the diagnosis of breast cancer.* ***Methods:*** *Abnormal breast mass region was segmented by K-means clustering from breast thermogram and multimodal segmentation from mammogram. Statistical GLCM and RLM features were extracted from the segmented mass region and from normal region for finding out difference. Analysis of asymmetrical skin surface temperature (SST) profile was performed using gray and color histograms.* ***Results:*** *The maximum temperature difference between the right and left side of the regions in breast cancer thermogram was found to be 1.1 degree Celsius whereas it was less than 0.2 in normal case. Mean, variance and Kurtosis shows higher values in the cancerous region than normal region of breast thermogram. Asymmetrical pattern between right and left breast region was found in color and gray scale histograms. Abnormal mass was identified by locating the hot region in SST profiles by K-means clustering.* ***Conclusion:*** *K-means clustering of color thermogram may be helpful for the location of abnormal mass region and the location was confirmed by the segmented mass from mammogram.*

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