

INNOVATIVE METHOD FOR EARLY DETECTION OF SKIN CANCER BASED ON FREQUENCY ANALYSIS

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Today, skin lesions and diseases are common problems that affect people around the world. Skin cancer is one of the most common cancers and it continues to increase. Therefore, the exact diagnosis is vital to reduce the mortality of this type of cancer. The purpose of this paper is to provide an innovative method based on tissue frequency analysis to obtain a precise and rapid assessment of these diseases. To achieve this, two issues have been merged. The first concept is biological resonance, which points to resonance in a biological organism. Biological resonance is a special method of diagnosis and treatment based on the resonance in biological organism as well as the findings of the biophysical and quantum mechanics. Second, ultrasound imaging is one of the high-resolution diagnostic methods for soft tissue imaging. Proposed method is based on the fact that body tissues express their dynamic frequencies when excited by ultrasonic waves; this dynamic frequency is considered as the basis for analyzing the skin texture behavior. Compared to current approaches, this study used frequency processes on ultrasound images and identified the natural frequency of cells as a golden biomarker in diagnosis. Developed algorithm was approved through a 2-year database of 400 patients from the Centre for Research on the Epidemiology of Disasters (CRED). The findings show that the proposed method is capable of evaluating benign and malignant lesions in skin tissue (AUC=0.959), with comparable clinical precision. At the selected threshold in this research, the sensitivities and specificities rate has reached to 93.8% and 97.3%, respectively.

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