Detection of Wound Pathogen
by an Intelligent Electronic Nose

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A new method of detecting wound pathogens based on an electronic nose was proposed and realized. A gas sensor array consisting of six metal oxide gas sensors and one electrochemical gas sensor was used to identify seven species of pathogens common in wound infection. By selecting the wavelet transform coefficients preferentially with a scatter matrix and using the mean of the selected coefficients as the feature, the identification accuracies of the probabilistic neural network classifier for the seven species of pathogens all reached 100%. The new feature extraction method showed high performance in the rejection of gas sensor drift. Theoretical analysis and experimental results indicate that this method can be used to accurately identify the common pathogens present in wound infection and can be further used in the real-time detection of wound infection.

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