

Title A novel technique for rapid evaluation of fish freshness using colorimetric sensor array
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Abstract

An olfaction system based on colorimetric sensor array was developed for fish freshness evaluation. Nine chemically responsive dyes were selected according to their sensitivity to volatile compounds typically occurring during spoilage in fish. The colorimetric sensor array was made by printing selected dyes on a reverse phase silica gel plate. Detection on fish of chub was made every 24 h within seven days. A color change profile for each sample was obtained by differentiating the images of the sensor array before and after exposure to the odor of sample. The digital data representing the color change profiles for the fish samples were analyzed using principal component analysis. The chub samples were classified into three freshness groups using a radial basis function neural network, with an overall classification accuracy of 87.5%. This research suggests that the system is useful for quality evaluation of fish and perhaps other food containing high protein.