

## Sniff-Camera for Imaging of Ethanol Vapor in Human Body Gases after Drinking

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**Abstract :** A 2-dimensional imaging system (Sniff-camera) for gaseous ethanol emissions from a human palm skin was constructed and demonstrated. This imaging system measures gaseous ethanol concentrations as intensities of chemiluminescence (CL) by luminol reaction induced by alcohol oxidase and luminol-hydrogen peroxide system. A conversion of ethanol distributions and concentrations to 2-dimensional CL was conducted on an enzyme-immobilized mesh substrate in a dark box, which contained a luminol solution. In order to visualize ethanol emissions from human palm skin, we developed highly sensitive and selective imaging system for transpired gaseous ethanol at sub ppm-levels. High sensitivity imaging allows us to successfully visualize the emissions dynamics of transdermal gaseous ethanol. The intensity of each pixel on the palm shows the reflection of ethanol concentrations distributions based on the metabolism of oral alcohol administration. This imaging system is significant and useful for the assessment of ethanol measurement of the palmar skin.

**Keywords :** sniff-camera, gas-imaging, ethanol vapor, human body gas

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