

Title Gas sensors development using supercritical fluid technology to detect the ripeness of bananas
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Abstract

This work reports the development of gas sensors with three different techniques applied to sensor coating with conducting polymer polyaniline (PANI) by: *in situ* polymerization, RESS (rapid expansion of supercritical solutions) of polyaniline doped with dodecyl benzene sulphonic acid (DBSA) in pressurized fluid, and precipitation. The two latter sensors were obtained through micro/nanoparticle deposition onto interdigitated line patterns of graphite deposited on tracing paper using the supercritical fluid technology. It is shown that sensors produced exhibited different behavior with regard to moisture and also to vapor-phase atmosphere of acetone, ethanol, *n*-hexane and ethyl acetate. Results demonstrate that sensors produced by precipitation and RESS seem to be promising to detect the ripeness of banana thus indicating a potential technology to be further explored towards developing accurate methods for monitoring the maturation of fruits.