

# Pemanfaatan Metode Analisis ATR-FTIR dan Kemometrika dalam Deteksi Turunan Berbasis Babi dalam Produk Makanan untuk Otentikasi Produk Halal = Utilization of ATR-FTIR and Chemometrics Methods in Detection of Pig-Based Derivatives in Food Products for Authentication of Halal Products

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Abstrak

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Otentikasi produk halal atas makanan sangatlah penting mengingat kekhawatiran kaum muslim tentang keberadaan zat terlarang dan nonhalal. Masih banyak produk makanan yang belum tersertifikasi halal. Produk ini umumnya mengandung turunan berbasis babi seperti daging, lemak babi atau gelatin yang dianggap haram dalam perspektif Islam. Oleh karena itu, review artikel ini dilakukan untuk mengetahui apakah metode ATR-FTIR dan kemometri dapat digunakan untuk mengidentifikasi dan mengukur keberadaan turunan berbasis babi. Dari hasil review, dapat disimpulkan bahwa metode spektroskopi ATR-FTIR dan kemometri mampu mendeteksi keberadaan turunan berbasis babi dalam produk makanan. Analisis dapat dilakukan dengan cepat, ekonomis, sederhana dan tidak membutuhkan persiapan sampel yang rumit. Selain itu, teknik ini cukup handal, tidak melibatkan pelarut berbahaya dan reagen serta ramah lingkungan. Hasil penelitian lain juga menunjukkan bahwa kemometrik model PLS dan PCA ditemukan cukup akurat dan tepat untuk menganalisis keberadaan lemak babi, daging babi dan gelatin babi pada produk makanan.

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<i><b>ABSTRACT</b></i>

Authentication of halal products on food is very important considering the concerns of Muslims about the presence of prohibited and non-halal substances. There are still many food products that have not been halal certified. These products generally contain pork-based derivatives such as meat, lard or gelatin which is considered haram in an Islamic perspective. Therefore, a review of this article was conducted to find out whether the ATR-FTIR and chemometry methods can be used to identify and measure the presence of pig-based strains. From the results of the review, it can be concluded that the ATR-FTIR spectroscopy and chemometry methods are able to detect the presence of pig-based derivatives in food products. Analysis can be done quickly, economically, simply and does not require complicated sample preparation. In addition, this technique is quite reliable, does not involve harmful solvents and reagents and is environmentally friendly. The results of other studies also showed that the chemometrics of the PLS and PCA models were found to be accurate and precise enough to analyze the presence of lard, pork and pork gelatin in food products.</i>