

APPLICATION OF FTIR SPECTROSCOPY FOR INITIAL ANALYSIS ON LEATHER PRODUCTS ADULTERATION OF PIGSKIN

Ragil Yuliatmo^{1*}, Wisnu Pambudi¹, Thoyib Rahman Hakim¹,
R.L.M.S. Ari Wibowo¹, and Yuny Erwanto²

¹Department of Leather Processing Technology, Politeknik ATK Yogyakarta, Indonesia

²Department of Animal Product Technology, Faculty of Animal Science, Universitas Gajah Mada



INTRODUCTION

Leather is commonly used in daily life and fashion style, such as jacket, bags, & shoes

Wearable things must have halal certificate (RI Law No.33, 2014)

FTIR spectroscopy is a method widely used for pig analysis (Syahariza, 2005)

Application of FTIR for initial analysis on leather products is appropriate to be studied

OBJECTIVE

This study aimed to identify the differences of spectral from pig, sheep and goats fat from raw and leather

METHOD

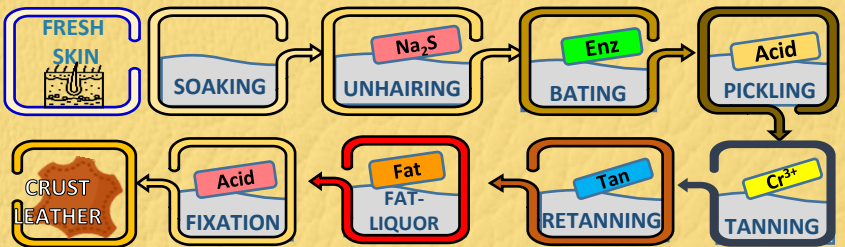
Pig, sheep, & goats skin

Pig, sheep, & goats leather

Fat Extraction (Soxhlet)

FTIR

TANNING PROCESS



RESULT

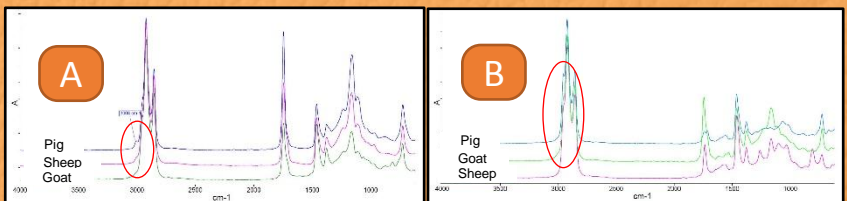


Figure 1. FTIR spectra of the lipid extracted from pig, sheep, & goats skin (A) and leather (B) at 4000-550 cm^{-1}

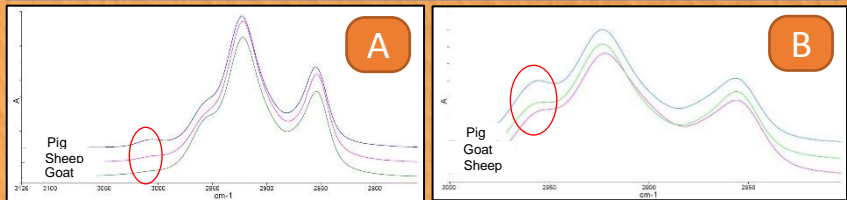


Figure 2. The enlarged FTIR spectra at fingerprint regions (3000-2800 cm^{-1}) used selecting wavenumber for further analysis

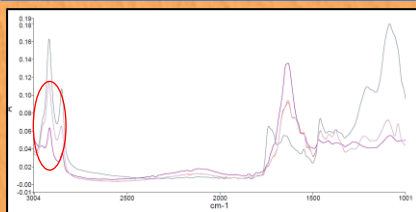


Figure 3. FTIR spectra of the lipid from 3 commercial fatliquors

DISCUSSION

At wavenumber 3000-2800 cm^{-1} , there is difference FTIR spectra peak between lipid from pig and sheep & goat. At the same wavenumber, there is almost similar peak from pig skin (A) and pig leather (B). Commercial fatliquor agents didn't have a similar peak with spectra of lipid from pig.

CONCLUSION

The FTIR method is able to distinguish pig with goat and sheep skin & leather. Fatliquoring didn't effect on leather FTIR spectra. This study is prospective to be continued by chemometrics as a quantitative analysis