Well diffusion method for evaluation of antibacterial activity of copper phenyl fatty hydroxamate synthesized from canola and palm kernel oils.

ABSTRACT

Hydroxamic acids and their derivatives have low toxicities and show wide range of biological activities. Copper complexes of phenyl fatty hydroxamic acids (Cu-PFHs) were prepared in a biphasic organic / aqueous medium from phenyl fatty hydroxamic acids (PFHAs) and copper nitrate. The products were separated by decantation of organic phase from aqueous phase followed by evaporation of the solvent. Elemental analysis, UV-Vis spectra and FTIR spectra showed that Cu-PFHs were formed in the solution from the complexation of PFHAs and copper ion. The antibacterial activity of PFHAs and Cu-PFHs from canola and palm kernel oils were investigated against Escherichia coli (E. coli) and Staphylococcus aureus (S. aureus) using well diffusion method. The results showed that Cu-PFHs have higher antibacterial activity compared to PFHAs. Antibacterial activity of Cu-PHAs from canola oil against E.coli was significantly higher than hloramphenicol and cefotaxime.

Keyword: Antibacterial activity; Copper phenyl fatty hydroxamate; Phenyl fatty hydroxamic acids; Canola oil; Palm kernel oil; Well diffusion methods.