Reaction parameters for the synthesis of N,N-dimethyl fatty hydrazides from oil

ABSTRACT

Hydrazide derivatives have been synthesized from methyl esters, hydrazones and vegetable oils. They are important due to their diverse applications in pharmaceutical products, detergents as well as in oil and gas industries. The chemical synthesis of fatty hydrazides is well-established; however, only a few publications described the synthesis of fatty hydrazide derivatives, particularly, when produced from refined, bleached and deodorized palm olein. Here, the synthesis and characterization of N,N-dimethyl fatty hydrazides are reported. The N,N-dimethyl fatty hydrazides was successfully synthesized from fatty hydrazides and dimethyl sulfate in the presence of potassium hydroxide with the molar ratio of 1:1:1, 6 hours reaction time and 80°C reaction temperature in ethanol. The product yield and purity were 22% and 89%, respectively. The fatty hydrazides used were synthesized from refined, bleached and deodorized palm olein with hydrazine monohydrate at pH 12 by enzymatic route. Fourier transform infrared, gas chromatography and nuclear magnetic resonance (NMR) spectroscopy techniques were used to determine the chemical composition of N,N-dimethyl fatty hydrazides. Proton NMR confirmed the product obtained were N,N-dimethyl fatty hydrazides.

Keyword: Fatty hydrazides; N,N-dimethyl fatty hydrazides; Dimethyl sulfate; Potassium hydroxide