

**STUDY ON INITIAL OVEN TEMPERATURE AND FLOW
RATE FOR METHYL LAURATE, METHYL PALMITATE AND
METHYL STEARATE USING GAS CHROMATOGRAPHY –
FLAME IONIZATION DETECTOR (GC-FID)**

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JANUARY 2019

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ABSTRACT

STUDY ON INITIAL OVEN TEMPERATURE AND FLOW RATE FOR METHYL LAURATE, METHYL PALMITATE AND METHYL STEARATE USING GAS CHROMATOGRAPHY –FLAME IONIZATION DETECTOR (GC-FID)

Gas Chromatography Flame Ionization Detector (GC-FID) has been used in this study to determine the optimum initial oven temperature and carrier gas flow rate using three different Fatty Acid Methyl Ester (FAMES) namely as Methyl Laurate, Methyl Palmitate and Methyl Stearate. The initial oven temperature and carrier gas flow rate were ranged from 50°C to 200°C and 0.5 mL min⁻¹ to 2 mL min⁻¹ respectively. In the determination of the optimum initial oven temperature and carrier gas flow rate, 150°C and 1 mL min⁻¹ were chosen as the optimum based on the highest peak area of the FAMES. For calibration curve of FAMES, it was found that the concentration of these three Fatty Acid Methyl Ester (FAMES) were proportionally linear from 50ppm-250ppm. The correlation coefficient (R²) for Methyl Laurate were 0.9803, for methyl palmitate were 0.9871 and methyl stearate were 0.9337 respectively. Limit of detection (LOD) and Limit of Quantification (LOQ) were determined. From the result, LOD value for Methyl Laurate was 11.94903 ppm while for LOQ was 36.20917 ppm. For Methyl Palmitate, the LOD value was 72.416 ppm and LOQ value was 219.4424 ppm. Lastly, for Methyl Stearate, the value for LOD was 64.81874 ppm and LOQ value was 196.4204 ppm. From the value, it can be concluded that sensitivity was found highest for Methyl Laurate as compared to Methyl Palmitate and Methyl Stearate.