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EFFECT OF TEMPERATURE ON THE PRODUCTION OF ETHANOL FUEL FROM SELECTED AGRICULTURAL RESIDUES

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ABSTRACT

The possibility of producing ethanol from agricultural residues like corn cobs peels, groundnut shells and plantain peels was investigated. Ethanol was produced from 500.0 g each of the grinded residues collected at a dump site in Ogbomoso at different temperatures (25, 30, 35 and 40^{o}C by using acid hydrolysis, fermentation and distillation. The results show that the volume of ethanol produced from the three residues increases with temperature up to 35^{o}C and begins to decrease with temperatures. The highest volumes of ethanol (21.50, 14.50 and 14.50 ml) were obtained at a temperature of 35^{o}C from plantain peels, groundnut shells and corn cobs respectively and the lowest volumes (16.0, 13.0 and 10.0ml) were obtained at 25^{o}C from plantain peels, groundnut shells and corn cobs respectively. It was also observed that plantain peels out of the three residues produced the highest volume of ethanol at all temperatures. With this result importation of ethanol can be reduced if substantial energy is devoted to the production of ethanol from agricultural residues at a temperature of 35^{o}C.

KEYWORDS: Ethanol, Fuel, Energy, Residue, Biomass and Temperature