



Performance Optimization of Liquid Smoke Device with Agricultural Waste Material

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Abstract : Preservation is an important process because most fresh food materials are easily damaged. The usage of liquid smoke begins to be developed since it is safe for human health and environment. The type of material used in creating liquid smoke can be taken from agricultural waste that have charcoal content. To get qualified liquid smoke which is safe to consume then it needs a device with optimum work performance. Therefore this research has engineered one liquid smoke device. The purpose of this research was to assess the liquid smoke device performance and find out the quality of liquid smoke produced.

This research used pyrolysis process and liquid smoke distillation from coconut shells and corn cobs by pyrolysis device, distillation and filtration column in optimum operation, then conducting analysis by using GC/MS and LC/MS to gain safer result to be used as preservatives agent.

The result of this research showed that the percentage of liquid smoke yield from coconut shells without drying and with drying were 36 % and 28,8 % meanwhile in corn cobs were 61,2 % and 30,4 %. The leftover charcoal from coconut shells were 33 % and 50 % whereas corn cobs were 16,7 % and 33,3 %. The missing component from coconut shells were 31 % and 21,2 %, whereas corn cobs were 22,1 % and 36,3 %. Working performance from the device fueled by coconut shells were 4,37 g/(hour.m) and 5,59 g/(hour.m), whereas corn cobs were 7,42 g/(hour/m) and 7,37g(hour/m). The liquid smoke quality resulted from its phenol content from coconut shells and corn cobs were 3,04 % and 1,38 %. The acidity quality were 7,3 % and 1,3 % with pH value of 1,41 and 2,47.

Keywords : liquid smoke, device working performance, quality, yield.

S.P. Abrina Anggraini et al /International Journal of ChemTech Research, 2017,10(13): 21-28.
