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Evaluation of the Potability Qualities of Pretreated Distilled Water Produced from Biomass Fuelled Water Distiller

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Abstract : Water samples with pretreatment and without pretreatment were obtained from locally constructed biomass fuelled stainless steel water distiller. The water samples were subjected to Microbial, Physicochemical and Minerals analyses for comparison with NAFDAC and WHO Standards for potable water. The results of the physicochemical and microbiological properties of the raw water(A), and the two distilled water samples (B; distill water without pretreatment) and (C; distill water with pretreatment) showed reduction in most of the quality parameters evaluated in the distilled water samples to the level that conforms to the W.H.O standards for drinking water however, lower values were obtained for the pretreated distilled water sample. The values of 0.0016mg/l, 0.0052mg/l and 0.0528mg/l for the arsenic, chromium and lead content respectively in the raw water were within the permissible limit specified by WHO however; the values of cadmium (0.067mg/l) and mercury (0.0287mg/l) are above the maximum tolerable for drinking water thus, making the raw water unsafe for human consumption. Similarly, the high total plate count (278cfu /ml) and coliform count (1100/100ml) indicate that the raw water is potentially harmful while the distilled water samples showed nil coliform count and low total plate count (35cfu/ml,18cfu/ml) for B and C respectively making the distilled water microbiologically safer for human consumption.

Keywords : biomass, distillation, mineral, potable, physicochemical
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