

UTILIZATION OF NYAMPLUNG SEED SHELL WASTE INTO ACTIVATED  
CHARCOAL AS AN ADSORBANT FOR THE HEAVY METAL IRON (Fe) IN  
TROKETON TPA LEACHATE KLATEN DISTRICT

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ABSTRACT

Leachate is liquid from waste that contains dissolved and suspended elements. Leachate is a form of environmental pollution produced by landfills. Nyamplung seed shell activated charcoal can be used as an adsorbent for the heavy metal iron contained in leachate water. The aim of this research is to determine the quality of activated charcoal used as an adsorbent, to determine the soaking time for activated charcoal which is effective in absorbing iron metal (Fe). This research in adsorbing iron metal (Fe) this research used an experimental design, namely a completely randomized factorial design. The factors used in this research are differences in soaking time (40, 60, 80, and 100 minutes). And chemical solutions ( $H_3PO_4$  and NaCl) as activated charcoal activators. Fe metal in leachate was analyzed using SSA. The results of this research were that the Fe metal content in the leachate was originally 7,046 ppm. The Fe metal content after being treated with the addition of  $H_3PO_4$  activated charcoal and soaking for 40, 60, 80 and 100 minutes reduced the Fe concentration for each time to 5,138 ppm, 5,131 ppm, 4,357 ppm, and 4,592 ppm. Meanwhile, the Fe metal content after being treated with the addition of NaCl activated charcoal and soaking for 40, 60, 80 and 100 minutes reduced the Fe concentration for each time to 5,599 ppm, 5,55 ppm, 5,846 ppm and 5,939 ppm. The Fe metal content in the leachate with the addition of  $H_3PO_4$  activated charcoal for soaking time of 80 minutes and 100 minutes has met Environmental Regulation No 5/2014 concerning Waste Quality Standards. The quality of activated charcoal with  $H_3PO_4$  and NaCl show good result in accordance with SNI (06-3730-1995).

Keyword : nyamplung seed shells, activated charcoal, Fe metal, leachate water