

C617598 : MAJOR ENVIRONMENTAL ENGINEERING

KEY WORD: ADSORPTION / ACTIVATED CARBON / CHARCOAL / BURNT RICE /
LEACHATE

SANCHAVAL ENKAPAK : PERFORMANCE OF COD AND COLOR REMOVAL
FROM LANDFILL LEACHATE BY ADSORPTION PROCESS USING GRANULAR
ACTIVATED CARBON, CHARCOAL AND BURNT RICE HUSK.

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This research is a feasibility study in removal of COD and color from leachate by adsorption process using granular activated carbon, charcoal and burnt rice husk. Physical characteristics of adsorbents have been examined, batch test by adsorption isotherm and continuous experiment for adsorption capacity have been performed.

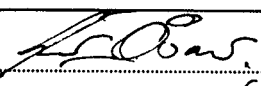
Experiment devices for studying performance of COD and color removal consisted of four down-flow columns diameter 0.03 m. at 3 m. height with depth of adsorbents 0.3, 0.6, 0.9 and 1.2 m. Landfill leachate at COD concentration 250, 500, 750, 1000 mg./L. and actual concentration were used at hydraulic loading 0.15, 0.3, 0.6 and 1.2 $\text{m}^3/\text{m}^2\text{-hr.}$ respectively.

Results reveal that charcoal and burnt rice husk are not feasible due to low COD and color adsorption capacity. Granular activated carbon is feasible from its initial COD and color reduction ranging from 78-97% and 37-96% respectively. Experiment at 1.2 height of granular activated carbon with hydraulic loading 0.15 $\text{m}^3/\text{m}^2\text{-hr.}$ and initial COD concentration 250 mg/L. has a maximum performance at COD removal 97% and color removal at 96%.

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