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Application of Eco-Friendly Plant-Based Flocculants for Sustainable Sludge Dewatering

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Introduction :

Using a safe, renewable source, biodegradable, and cost-effective flocculant to substitute chemical equivalent is urgently needed for broadening and improving sludge conditioning prior to dewatering. This study aims to evaluate the potential use of six plant-based flocculant (PBFs) as an eco-friendly flocculant in conditioning activated sludge. The dewatering properties, including the specific resistance to filtration (SRF), dryness of filtration cake (DC) were measured and compared with conventional chemical flocculant (PACl).

Results :

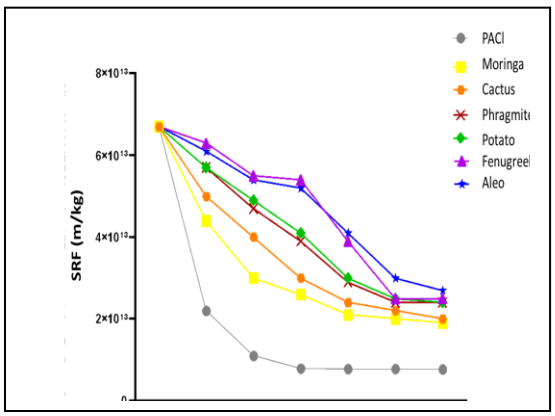

Figure 1.Effect of different doses of PBFs on SRF upon sludge conditioning

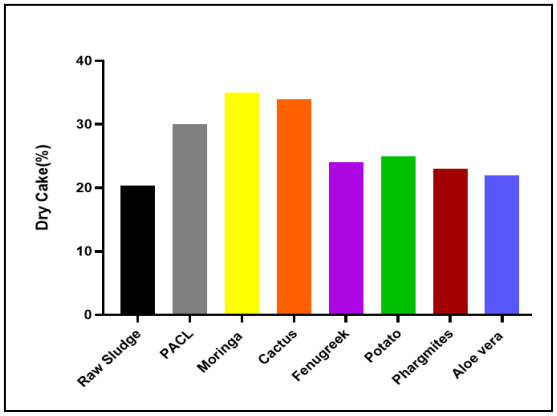

Figure 2. Dryness of filtration cake at the optimized dosage

Com PACl), Moringa and Cactus showed superior cond s and the highest DC.

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Conclusion :

This study provides an economical, green, and effective way to further improve the dewaterability of sludge, while simultaneously achieving the sustainable goal of “waste-treating-waste”.

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