

Evaluation on different forms of *Moringa oleifera* seeds dosing on sewage sludge conditioning

Kien Tat Wai^{a*}, Azni Idris^b, Megat Mohd Noor Megat Johari^a, Thamer A. Mohammad^a, Abdul Halim Ghazali^a, Suleyman A. Muyibi^c

^aDepartment of Civil Engineering, Universiti Putra Malaysia, 43400 UPM Serdang, Malaysia

Tel. +60 (1) 33523188; Fax +60 (3) 86567129; email: kenwai76@yahoo.com

^bDepartment of Chemical and Environmental Engineering, Universiti Putra Malaysia, 43400 UPM Serdang, Malaysia

^cDepartment of Biotechnology Engineering, Kulliyah of Engineering, International Islamic University Malaysia, 53100 Kuala Lumpur, Malaysia

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ABSTRACT

The effect of different form of dosing using *Moringa oleifera* seeds in sewage sludge conditioning was studied. Settled activated sludge after clarification process was obtained from sludge holding tank in Sewage Treatment Plant, Taman Tun Dr. Ismail, Kuala Lumpur, Malaysia. In this study, sludge conditioning with *Moringa oleifera* seeds in 3 different forms: dry powder, distilled water extracted and salt extracted (1 N NaCl) — were studied in comparison with chemical polymer, Zetag 7653. The study applied operator's specification, Indah Water Konsortium Sdn. Bhd., Malaysia (IWK) with preparation of *Moringa oleifera* in water and salt stock solution and Zetag 7653 stock solution were done at 650 rpm for 1 h. Sludge conditioning was then operated at 60 rpm for 45 min using jar test apparatus. Using specific resistance to filtration (SRF) as a parameter, *Moringa oleifera* in dry powder form at dosage of 2000 mg/L was comparable to 50 mg/L Zetag 7653 in reducing the value from 8.0×10^{10} to 3.3×10^{10} m/kg (2.5 times of magnitude). Therefore, *Moringa oleifera* in dry powder form was as effective as Zetag 7653. There was no significant change in CST between the three methods of extraction for *Moringa oleifera*. Without applying filtration using muslin cloth, sludge solid content when dosed with *Moringa oleifera* in distilled water extracted form showed the least increment at 17.08%.

Keywords: Sludge conditioning; *Moringa oleifera*; Natural polymer; SRF; Zetag 7653

* Corresponding author.