Thitinat Sakranukit 2006: Using Vetiver (*Vetiveria zizanioides* (L.) Nash.) for Domestic Wastewater Treatment at Kasetsart University. Master of Science (Environmental Science), Major Field: Environmental Science, College of Environment. Thesis Advisor: Associate Professor Sombun Techapinyawat, Ph.D. 129 pages.
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Four vetiver ecotypes: Surat Thani, Indonesia, Songkhla 3 and Sri Langka were used. The growth of these vetivers at 16 weeks (4 months) showed that Indonesia ecotype is superior in having the highest plant height of 150.20 cm, root length of 10.20 cm, shoot weight of 19.99 g/clump, biomass of 27.95 g/clump, number of tillers of 7.00 tiller/clump. Sri Langka ecotype, on the other hand, gave the maximum in root weight of 8.28 g/clump, while Surat Thani and Sri Langka showed no superior character compared to others.

Considering the ability to absorb nutrients and heavy metals (manganese, zinc, copper, lead, nickel and chromium), Songkhla 3 ecotype gave the highest uptake of nitrogen in the shoot (23.027 mg/ clump). Indonesia ecotype, on the other hand, gave the highest uptake of nitrogen in the root (11.242 mg/ clump). Surat Thani ecotype gave the highest uptake of phosphorus in the shoot (5.019 mg/ clump) and the root (2.983 mg/ clump). Indonesia ecotype gave the maximum heavy metals uptake in the shoot, whereas Surat Thani ecotype gave the maximum heavy metals uptake in the root.

As for wastewater treatment, Indonesia ecotype could efficiently decrease total nitrogen, BOD, nitrate, lead and nickel by 46.30, 66.26, 44.45, 80.98 and 92.57 %, respectively. Surat Thani ecotype could efficiently decrease total phosphorus, total suspended solids, chlorophyll content, manganese and zinc by 34.86, 78.33, 55.64, 28.57 and 88.89 %, respectively. On the other hand, Songkhla 3 ecotype was found to be the most efficient in decreasing electrical conductivity, total dissolved solids, nitrite, turbidity and iron by 35.34, 35.10, 89.58, 84.09 and 80.51%, respectively. Sri Langka ecotype could efficiently increase dissolved oxygen by 33.11 % and decrease copper by 85.01 %. Vetiver at 12 weeks (3 month) stage and grown at the distance of 18 m to block the passage of wastewater was the most efficient way to treat domestic wastewater.

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