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Effect of composted sago and pressmud on seedling growth of soybean [*Glycine max* (L.) Merrill] and cowpea [*Vigna unguiculata* (L.) walp)]

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SUMMARY

The present investigation has been carried out to evaluate the efficacy of composted sago waste and pressmud on the seedling growth of soya bean [*Glycine max* (L) Merrill] and cow pea [*Vigna unguiculata* (L)Walp]. The Sago waste and press mud are solid wastes collected from the sago and sugar factory, respectively. The solid wastes were composted using *pleurotus sajor caju* . Seven treatments were given. Composted agro wastes application significantly increased the seedling growth parameters like epicotyl length,hypocotyl length, number of lateral roots, plant fresh weight and plant dry weight. Based on the potentiality of the composts it can recommended to be used as manure.

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Key words : Pressmud, Sago, Compost, Soybean, Cowpea

Composting is a biological process in which micro organisms convert organic materials such as manure, sludge, leaves, paper and food waste into a soil-like material called compost (Rynk,1992). Compost application can cut costs,reduce nitrate leaching and maintain economic levels of production.Sago wastes besides polluting the environment with their high organic content they are toxic to most of the organisms as they release cyanide. Press mud after composting contains valuable plant nutrients. Large quantities of these manures at present,used either in an uneconomic manner or left completely unutilized can be usefully exploited to add to the national wealth.

These wastes can be effectively composted into an enriched organic manure. This research was carried out to brighten the possibilities of using the agro wastes in increasing the growth characters of seedling in soybean and cowpea.

MATERIALS AND METHODS

Biocompost is humus rich organic manure prepared by mixing press mud and sago wastes and water separately in the ratio of 1:2. Pits of 2x1x1/2m size were used for composting. *Pleurotus sajor caju* was used as inoculum for composting and 5kg of urea was used.The heep was kept for 30 days for decomposition.At the end of 30 days pressmud and sago waste turned in to a black mass of compost. Soybean and cowpea were taken as the test crops.There were 7 treatments with three replications. They were :T_1-Control, T_2-1% composted sago, T_3-5% composted sago, T_4-10% composted sago, T_5-1% pressmud. T_6-5% composted press mud and T_7-10% composted press mud.

The seeds were soaked in the compost extracts for 12 hours,after which they were arranged in germination towels.After 7 days, the epicotyl length, hypocotyl length, number of lateral roots, plant fresh weight and plant dry weight were recorded.

RESULTS AND DISCUSSION

Soybean had got world wide acceptance because of the protein rich nature and it is termed as "Golden bean" by agricultural scientists (Xavier paul Raj,2002).Cowpea is an important multipurpose leguminous crop rich in protein and other nutrients and known as vegetable meat.

Table 1 depicts the influence of composted sago and pressmud on seedling growth of soybean.On the 7th day after sowing there was an significant increase in epicotyl length in all the treatments.The hypocotyls length and number of lateral roots were favoured in T4 and T_7 treatments when compared to the control.A slight increase in dry and fresh plant weight was observed with all the treatments and a significant increase was at T_7 (1 g) when compared to the control (0.5g). Similar results were reported by Kalivani (2010) in *Lablab purpureus* and *Cymopsis tetragonoloba.*

Table 2 depicts the effect of composted sago and

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Table 1 : Effect of composed sago and pressmud on seedling growth of soybean [*Glyicne max* (L.) Merrill]

Treatments	Epicotyl length (cms)	Hypocotyl length (cms)	No. of lateral roots	Plant fresh weight(g)	Plant dry weight(g)
T_1	8.9	13.9	24.3	0.5	0.05
T_2	10.8	16.5	28.1	0.7	0.06
T_3	11.5	17.8	32.6	0.8	0.07
T_4	12.5	19.4	40.8	0.9	0.08
T_5	11.8	17.9	32.3	0.8	0.07
T_6	12.3	18.4	35.0	0.9	0.08
T_7	13.9	19.5	46.0	1.0	1.00
S.E.±	0.5222	0.8845	4.9906	0.0682	0.0667
C.D. (P=0.05)	2.5462	4.3127	24.3337	0.3325	0.3252

Table 2 : Effect of composed sogo and pressmud on seedling growth of cowpea [*Vigna unguiculata* L.) Walp]

Treatments	Epicotyl length (cms)	Hypocotyl length (cms)	No. of lateral roots	Plant fresh weight (g)	Plant dry weight(g)
T_1	12.6	22.1	47.7	0.80	0.06
T_2	13.1	23.3	65.0	0.89	0.07
T_3	13.7	26.9	66.3	0.98	0.07
T_4	14.8	29.3	68.3	1.03	0.08
T_5	13.0	25.7	51.3	0.92	0.06
T_6	13.7	26.1	65.0	0.93	0.06
T_7	14.9	28.2	73.3	1.20	0.09
S.E.±	0.6778	0.8535	6.2153	0.1167	0.0145
C.D. (P=0.05)	3.3049	4.1616	30.3052	0.5690	0.0707

pressmud on seedling growth of cowpea. The significant increase in epicotyl length was noted in all the treatments.The hypocotyl length was influenced by compost treatments.The highest value was obtained with T_4 (29.3cm).The composted sago treatment T_4 and composted press mud T_7 incresed the number of lateral roots and plant fresh weight.The Maximum dry weight was obtained in treatment T_7. Similarly increased growth due to compost application was reported by Kore *et al.* (1992) in pulses.From the results obtained it can be concluded that the agro-industrial wastes-pressmud and sago a low cost,quality –consistent humus rich biocompost can be effectively used as organic manure.

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