one and five weeks incubated peat and 5 weeks incubated tapioca flour significant results were observed.

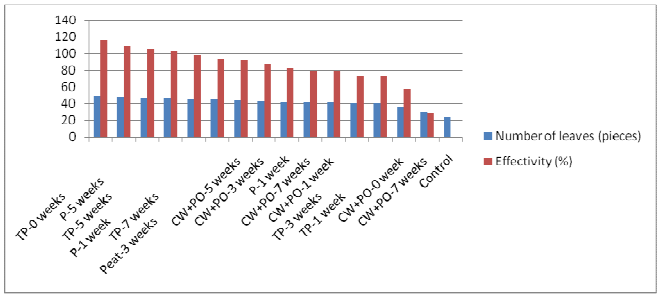

Fig. 4. Number of leaves on rhizobacterial introduced soybean and their effectivity

The days required by plants to reach flowering was significantly advanced by seven days faster in rhizobacterial introduced soybean compare than control, such as three, five and seven weeks incubated coconut water formula, thre, five and seven weeks incubated tapioca flour formula, and one, three, and seven weeks incubated peat formula (Table 2).

TABLE II
BEGIN OF FLOWERINGE PHASE OF RHIZOBACTERIAL INTRODUCED SOYBEAN AND THEIR EFFECTIVITY

Formulation-Incubation periode (weeks)	Generative phase (DAP)	Effectivity (%)
Coconut water+palm oil 0 week	47,67	-3,63
Control	46,00	0,00
Tapioca flour-1 weeks	44,67	2,89
Peat-5 weeks	44,00	4,35
Coconut water+palm oil-1 weeks	43,33	5,80
Peat-0 week	43,33	5,80
Peat-1 week	41,00	10,87
Peat-7 weeks	40,33	12,33
Coconut water+palm oil -7 weeks	40,00	13,04
Tapioca flour-0 week	40,00	13,04
Coconut water+palm oil -5 weeks	40,00	13,04
Tapioca flour -5 weeks	39,33	14,50
Tapioca flour -3 weeks	39,33	14,50
Peat-3 weeks	39,33	14,50
Tapioca flour -7 weeks	39,33	14,50
Coconut water+palm oil 3 week	39,00	15,22
SD = 9,69 %		

Under greenhouse conditions the soybean yield was significantly increased by fast all the formulations and incubation periode compared with the nontreated control. In case of increase in soybean yield, there was significant difference among the different formulations and incubation periodes. All of them were significantly higher than control (Figure 5).

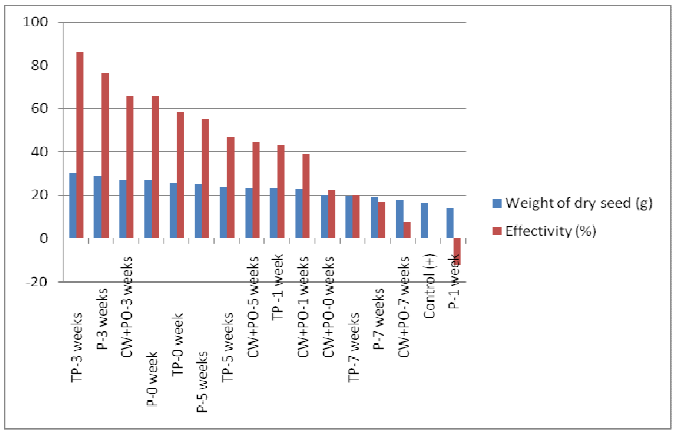

Fig. 5. Soybean yield after application of rhizobacterial formula and different incubation periode and their effectivity.

B. Discussion

We The ability of PGPR in growth promotion and resistance induction in various crops is well documented ([17], [18], [19], [20]). The results reported here corroborate earlier studies and indicate a future possibility that PGPR formulations can be used to promote growth of crop plants. Treatments with rhizobacterial formulations significantly enhanced the growth of soybean plants.

Peat formulations have also promoted growth in different plants like cucumber, watermelon, squash, ornamentals, vegetables, pepper, tobacco and tree species like loblolly pine, and lodge pine Douglas fir. ([21], [22], [23], [24], [25], [26], [27]). However, this is the first report that demonstrates the efficiency of tapioca flour and coconut water formulations promoted growth in soybean plant.

Our results suggest that PGPR formulation can be used practically in production of soybean. The practical applications of these formulations were supported by the magnitude of growth promotion recorded by these treatments which was highly significant in comparison with the nontreated control. The most important result was the considerable increase in yield of soybean. Another important result was the advancement of flowering faster by 7–8 days than non treated control.

Earlier studies on PGPR have also reported that rhizobacteria are potential growth enhancers in different. crops like potato, pearl millet, and sorghum ([28], [29], [30]). In the present study, all the formulations tested showed their efficacy in enhancing germination of soybean. The treated plants showed advanced emergence of seedlings in comparison to the control. In general, all the formulations showed a significant enhancement of growth and reproductive parameters such as height, number of leaf, flowering stage, and yield od soybean under greenhouse conditions

IV. CONCLUSIONS

All the formulations showed a significant enhancement of growth and reproductive parameters such as height, number of leaf, flowering stage, and yield of soybean under greenhouse conditions.

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