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Effect of different sources and concentrations of Panchagavya on N, P uptake and yield of ashwangandha (*Withania somnifera* L.)

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ABSTRACT : The field experiment was conducted to study the effect of Panchagavya made from cow and buffalo products sprayed to plants and applied to soil with different concentrations (3 and 5% to plant and 9 and 15% to soil) and at different intervals (3 sprays - 30, 60 and 90 DAS; 4 sprays - 20, 40, 60 and 80 DAS). The highest N and P uptake was recorded with PG-C @ 5% - 4 sprays (T_4) at flowering and harvest stages. In total nutrient uptake, the per cent of shoot contribution was more than root at flowering and harvest. The total nutrient uptake was increased with age of crop. The highest dry root yield was noticed with PG-C @ 5% - 4 sprays (T_4) (238 during *Rabi* 2007-08 and 280 kg ha^{-1} during *Kharif* 2008 at harvest, respectively).

KEY WORDS : Panchagavya, N and P uptake, Root yield, Ashwagandha

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Before green revolution, cultivation was mostly by natural and traditional farming methods which involved natural methods of maintaining soil fertility and controlling crop pests. Consequent upon green revolution, the use of high yielding and fertilizer responsive varieties and cultivation system has been intensified and indiscriminate use of chemical fertilizers and pesticides led to several harmful effects on soil, water and environment causing pollution and decline in productivity of soil. Infact organic agriculture is a holistic way of farming with an aim of conserving the natural resources through the agronomic practices and the use of locally available low cost inputs in order to maintain soil fertility.Ashwagandha is an important medicinal plant which gives good response to fertilizers and organic manures. Intensive cultivation of any crop on a fixed site deteriorate soil health. Now there is a great concern to maintain soil health and protect environment by popularizing eco-friendly and cost effective organic manures. Application of Panchagavya either by foliar spray or soil application improves the nutrient absorption capacity and maintain the soil health for sustaining the soil productivity. In this context, the present investigation was undertaken to study the effect of Panchagavya sprayed at different intervals with different concentrations on nutrient uptake and yield of ashwagandha.

RESEARCH METHODS

A field experiment was conducted to study the effect of Panchagavya on nutrient uptake and yield of ashwagandha at College Farm, College of Agriculture, Rajendranagar, ANGRAU on a sandy clay loam soil during *Rabi* 2007-08 (I year) and *Kharif* 2008 (II year). The experiment was laid out in Randomized Block Design with 12 treatments.

Treatmental details:

T_1 – Panchagavya (cow) spray @ 3% with 3 sprays at 30, 60 and 90 DAS

T_2 – Panchagavya (cow) spray @ 5% with 3 sprays at 30, 60 and 90 DAS

T_3 –Panchagavya (cow) spray @ 3% with 4 sprays at 20, 40, 60 and 80 DAS

T_4 – Panchagavya (cow) spray @ 5% with 4 sprays at 20, 40, 60 and 80 DAS