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## Effect of integrated nutrient management on quality of broccoli (*Brassica oleracea* var. *italica*) cv. FIESTA under Jharkhand conditions

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**Abstract :** An investigation was carried out at Birsa Agricultural University, Ranchi during 2008-09 and 2009-10 to standardize integrated nutrient management for broccoli under Jharkhand conditions. The experiment consisted of 19 treatments *i.e.*, four inorganic combinations 200:100:100 kg NPK, 150:75:75 kg NPK, 100:50:50 kg NPK and 50:25:25 kg NPK ha<sup>-1</sup>, 12 organic and inorganic combinations by substituting 25 per cent N of above inorganic combinations through FYM, vermicompost and karanj cake along with recommended dose 100:50:50 kg NPK + 200 q FYM ha<sup>-1</sup> and two controls N<sub>0</sub> P<sub>100</sub> K<sub>100</sub> and N<sub>0</sub> P<sub>0</sub> K<sub>0</sub>. Treatments with high as well as lower content of total nutrient resulted in significantly lower TSS and soluble carbohydrate whereas higher sugar content was obtained with application of higher dose of nutrient and vermicompost. Treatments with lower content of nutrients resulted in maximum phenol content while treatments without nitrogen resulted in minimum content of total soluble protein. With respect to content of ascorbic acid in the curd, the maximum value was recorded in case of treatments without application of nitrogen.

**Key words :** INM, Broccoli, Quality, Curd, Variety

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Vegetables are considered as essential food, rich in various nutrient elements. Different vegetables are good source of proteins, carbohydrates, minerals, vitamins etc. Hence, they are reckoned as protective food essential for human health. Sprouting broccoli belonging to the family Brassicaceae is an important cole crop after cabbage and cauliflower. It is one of the most nutritious cole crops and contains vitamin A (130 times and 22 times higher than cauliflower and cabbage, respectively), thiamin, riboflavin, niacin, vitamin C and minerals like Ca, P, K and Fe (Sanwal and Yadav, 2005). It has a very powerful anti-cancer compound, glucosinolate, which provides protection against bowl cancer.

In India, broccoli is gaining popularity during the last few years among the consumers particularly in and around bigger cities owing to the increased awareness about the nutritional properties as well as palatability. The state of Jharkhand provides ample opportunity for successful cultivation of broccoli due to the mild climatic conditions

prevailing in Ranchi and adjoining areas.

Nutrient management is one of the most important practices for profitable cultivation of any vegetable crop. Recommendations on fertilizer application in broccoli have also been made from different parts of the country (Singh and Singh, 2000; Brahma *et al.*, 2002) with varying doses of different nutrients depending upon the soil fertility status under different regions. Integrated nutrient management having chemical fertilizers applied along with organic sources of nutrients is an effective method for economization of production cost as well as maintenance of soil fertility.

Being a newly introduced crop of Jharkhand, there is an urgent need for standardization of integrated nutrient management packages having locally available organic sources integrated with chemical fertilizers. Keeping this in view, the research work undertaken to know the effect of integrated nutrient management on quality of broccoli