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The effect of different growth media on seed germination, phytochemical constituents and nutritional elements present in *Spinacia oleracea*

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Abstract : *The present study was carried out to determine the effect on the nutritional and phytochemical content of Spinach plant grown in various organic and inorganic media mixed with soil.Out of 50 seeds that were sown in soil supplemented with organic and inorganic media , 48 seeds germinated in the soil mixed with coir and vermiculite media and 41 seeds germinated in garden soil. After 7 days and 14 days the size of the seedlings were observed as 7.8 cm and 11 cm respectively ,which were found to be maximum in green waste with vermiculite media because green waste offered a large surface area for microbial decomposition during composting. Addition of inorganic materials increased the available water holding capacity and reduced excessive concentrations of soluble salts. Vermiculite which is 2:1 clay has a high cation exchange capacity. They are weathered micas in which the potassium ions between the molecular sheets are replaced by magnesium and iron ions. UV-VIS spectrophotometeric estimation of protein in aqueous extract of leaf was found to be maximum (800 µg/ ml) in green waste and vermiculite and minimum (385 µg/ ml) in garden soil. Similarly Concentration of Iron was maximum (8.02 × 10 $^{-5}$ mol L^{-1}) in the leaf extract of spinach grown in green waste and vermiculite media and minimum (4.02 × 10 $^{-5}$ mol L^{-1}) in garden soil. Concentration of vitamin C was highest in green waste (850 µg/ml) and lowest in coir and vermiculite (180 µg/ ml) even though coir contains good amount of cellulose and lignin and it had good water retention capacity and aeration. This quality of coir helped the roots to grow faster.The results of the work suggest that the yield and nutritional value of the plant increased when the soil was supplemented with organic and in organic media.*

Key Words : *Spinacia oleracea, Vermiculite, Coir, Green waste, Spectrophotometer.*

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Introduction:

Spinacia oleracea is a good source of iron and claims a special place among vegetables in terms of its phytonutrient contents. So, the cultivation and consumption of this green leafy vegetable has often been suggested by using supplemented media for