



## Comparative study of physiological effect of selected fruit peels as natural fertilizer on *Spinacia oleracea*

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**Abstract :** Natural fertilizers are one of the most important substance for growth and development of the plants. The present study deals with the comparative study of physiological effect of selected fruit peels of Pomegranate, Banana and Orange as a natural fertilizer on germination, growth and nutritional content of *Spinacia oleracea*. Among all the three test samples, maximum physiological effect was observed on the seeds grown in Pomegranate peel fertilizer applied soil. Out of 50 seeds that were sown in each fruit peel fertilizer applied soil, maximum germination of 48 seeds were recorded in Pomegranate fruit peel powder fertilizer compared to minimum of 45 seeds that germinated in the Banana peel fertilizer applied soil. The maximum size of seedling after 21

days was observed 8cm in the Pomegranate fertilizer applied soil and minimum 3.5cm in Banana peel. UV- vis spectrophotometric estimation of protein was found to be highest in Pomegranate (456.6µg/ml). The concentration of iron was also highest ( $8.02 \times 10^{-6} \text{ mol L}^{-1}$ ) in Pomegranate peel fertilizer. Vitamin C was observed highest 290µg/ml in Pomegranate. The results also reveal the Pomegranate peel fertilizer as a potential alternative to chemical fertilizer, ammonium nitrate which was used as a control.

**Keywords :** *Spinacia oleracea*, Fruit peels, UV VIS spectrophotometer, Ammonium nitrate, Chemical fertilizer.

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### Introduction :

*Spinacia oleracea* is a good source of vitamins, iron, and protein. It contains a large amount of phytonutrients. The plants grow in rosette under warm temperature and long day length. The leaves of *Spinacia oleracea* are used for eaten as fresh or cooked. The leaves of spinach are alternate, simple, ovate to triangular variable in size from about 2-30cm (Insel *et al*/2003). Chemical fertilizers are used for providing nutrients to plants although they have some negative environmental effects on soil, surface water and ground water due to dispersion of mineral which are used (Babu *et al* 2007). The use of chemical fertilizer can result in nutrient loss of the plant. The high percentage of