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Selenium accumulation in Portulaca oleracea L. – an edible medicinal plant

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The uptake and accumulation of selenium by *Portulaca oleracea L.*, a commercially cultivated vegetable of the world, from soils (alfisol) amended with various concentrations of selenium as sodium selenite was investigated. The plants were raised by planting stem cuttings and the grown plants were healthy upto the soil treatment concentration of 40 mg/Kg. The maximum accumulated concentration recorded in such plants was 63.39 μg/g DW. Among the plant parts the order of accumulation was leaves (31.54 μg/g) $>$ stems(16.37 μg/g) $>$ roots(15.48 μg/g). The results showed the feasibility of raising the plant in Se amended soils through stem cuttings at soil concentrations not exceeding 40 mg/Kg and at shortest time span of 42 days, the recorded concentration of Se in the plant could be achieved. At higher soil concentrations, from reduced growth to failure of growth and regeneration, has been observed. The accumulation potential was four fold higher than the plant available concentration of 15.21μg/g of Se /g of soil (DTPA extracted). In view of the enhanced accumulation, the plants can perform the dual functions of alleviating the problems of soil pollution and Se deficiency in humans. The daily human requirement of Se is 110 μg/g per person/ day. Since *P.oleracea* is used as an edible plant world wide – as an ordinary dish eaten raw or cooked, or raw in salads, or with salt, 24.63 g of wet plant raised on 40 mg/ Kg of Se amended soil for 42 days could supplement the daily requirement of Se to humans thereby help prevent the occurrence of Se deficiency diseases such as Keshan and Kaschin-Beck diseases reported in China as well as to reduce the risk of cardiovascular disease and even cancer.