

THE EFFECT OF SEAWEED CONCENTRATE ON THE GROWTH OF TOMATO PLANTS IN NEMATODE-INFESTED SOIL

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ABSTRACT

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Greenhouse tests were conducted to determine the effects of a commercially available seaweed concentrate (Kelpak 66) on the growth of tomato plants (*Lycopersicon esculentum* Mill.). Kelpak 66 at a dilution of 1:500 improved the growth of tomato plants significantly, irrespective of whether it was applied as a foliar spray at regular intervals, or whether the soil in which the tomatoes were planted was flushed once with the diluted seaweed concentrate. Root growth was significantly improved whenever the seaweed concentrate was applied. Associated with this improved root growth was a reduction in root-knot nematode infestation. The significance of these findings is discussed.

Keywords: *Lycopersicon esculentum*; nematodes; seaweed; tomato.

INTRODUCTION

There are numerous reports indicating that seaweed extracts are responsible for increased crop yields (Senn et al., 1961; Blunden, 1972) and that it can delay fruit senescence (Povolny, 1969; Skelton and Senn, 1969; Blunden, 1972). The reasons why seaweed extracts are beneficial to plant growth are still unclear.

The presence of trace elements has been put forward as an explanation for improved growth. It would, however, appear as if such an explanation is not totally adequate, as the amount of seaweed applied to crops would contain too little of these elements to elicit the growth responses which have been observed (Blunden, 1977). That plant hormones, and in particular cytokinins, may be involved was suggested by Booth (1966). This conclusion was reached because most of the responses obtained with seaweed extracts were similar to those observed when cytokinins were applied to plants. Further circumstantial evidence supporting this hypothesis was the detection of cytokinin-like activity in a number of seaweeds (Hussain and Boney, 1969; Jennings, 1969; Kentzer et al., 1980). It is also well established that these hormones are present in commercial extracts prepared from marine algae