

## Effect of seaweed concentrate on the establishment and yield of greenhouse tomato plants

I.J. Crouch & J. Van Staden \*

UN/FRD Research Unit for Plant Growth and Development, Department of Botany, University of Natal,  
P.O. Box 375, Pietermaritzburg, 3200, Republic of South Africa (\* author for correspondence)

Received 23 March 1992; revised 27 May 1992; accepted 28 May 1992

**Key words:** seaweed concentrate, *Ecklonia maxima*, *Lycopersicon esculentum*, seedling establishment, yield

### Abstract

Seaweed concentrate prepared from *Ecklonia maxima* (Osbeck) Papenfuss, when applied as a soil drench, significantly improved the growth of tomato seedlings. Application as a foliar spray had no effect on young plants. In a second experiment SWC-treated plants exhibited early fruit ripening and a total fruit fresh weight increase of 17%. The number of harvested fruit were improved by about 10%. In this instance foliar applied SWC was more beneficial than SWC applied to the soil. The significance of these findings is discussed.

**Abbreviations:** SWC = seaweed concentrate.

### Introduction

The application of commercial seaweed preparations has many beneficial effects on plants (Metting *et al.*, 1990). An improvement in tomato yield after the application of seaweed to the plants as either a soil drench or foliar spray has been recorded (Blunden, 1972; Stephenson, 1974). Little is known about the effect of these products on seedling establishment or the effect of pre-harvest spraying on the final growth and development of fruit. While enhanced plant growth has been attributed to plant growth regulators, and in particular cytokinins (Tay *et al.*, 1985; 1987) and

auxins (Crouch *et al.*, 1992) in the extracts, the exact physiological mechanisms are still not known.

The final test with any plant growth additive is to determine whether it is economically viable in terms of crop yield increases. Final yield may possibly be improved by studying application parameters such as mode and time of application and amount of additive applied. This study examines some of these important issues and reports on the effectiveness of a commercial SWC on tomato seedling establishment and its effect on fruit growth and development.