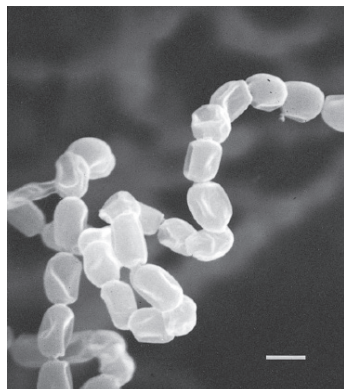


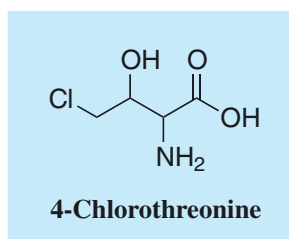
4-Chlorothreonine

1. Discovery, producing organism and structure¹⁾

4-Chlorothreonine was isolated from the culture broth of the actinomycete strain OH-5093 in the course of screening for herbicidal substances. 4-Chlorothreonine is reported as component of syringomycins and syringostatins.²⁾



Streptomyces sp. OH-5093



2. Physical data

White powder. $C_4H_8NO_3Cl$; mol wt 153.57. Sol. in H_2O , MeOH. Insol. in acetone, $CHCl_3$. Decomposed in DMSO.

3. Biological activity¹⁾

4-Chlorothreonine inhibited the growth of radish and sorghum at more than 30 μg /test tube. It inhibited the growth of *Candida albicans* on a synthetic medium (inhibition zone: 21 mm at 50 μg /disc); growth inhibition was reduced by adding 250 μg /disc of L-alanine, proline, threonine, and DL- γ -aminobutyric acid. The herbicidal activity is suggested to be caused by inhibition of amino acid metabolism.

Herbicidal activities

Compound	Rate (μg /tube)	Growth inhibition (%)	
		Radish	Sorghum
4-Chlorothreonine	120	70	80
	30	30	30
Bialaphos	120	90	80
	30	40	50

Radish and sorghum seeds were grown in small test tubes (2 x 10 cm) at 27°C for 4 days under lights. Plant heights were compared. Bialaphos is a commercial herbicide produced by an actinomycete.

4. Reference

- [552] H. Yoshida *et al.*, *J. Antibiot.* **47**, 1165-1166 (1994)
- N. Fukuchi *et al.*, *J. Chem. Soc., Perkin I* **875**, 1149-1157 (1992)