

**P033** Structure and characteristics of a *retro*-Claisenase from the cyanobacterium *Anabaena* PCC7120

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Rare homologues of the recently studied *retro*-Claisenase enzyme 6-oxo camphor hydrolase (OCH, from *Rhodococcus*) have been identified in the genomes of the cyanobacterium *Anabaena* and *Gloeobacter*. The gene encoding 'AnaOCH' has been cloned and over-expressed, and the enzyme isolated and purified. The kinetic characteristics and prochiral selectivity of AnaOCH for the desymmetrisation of bicyclo-[2.2.2]-octane-2,6-dione have been determined. We have also determined the structure to 1.5 Å and this has revealed interesting differences in the molecular determinant of substrate recognition between the *Rhodococcus* and *Anabaena* enzymes.