

# $\alpha$ -Glucosidase activity of perialgal vacuoles in the ciliate *Paramecium bursaria*

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## **SUMMARY**

*Paramecium bursaria* has several hundred symbiotic *Chlorella*, each of which is enveloped in a peri-algal vacuole (PV) membrane. Symbiotic *Chlorella* is known to secrete soluble carbohydrates (mainly maltose) into PV before the host uses them in its cytoplasm. Total  $\alpha$ -glucosidase (maltase) activity of symbiotic (*Chlorella*-containing) *P. bursaria* was determined by measuring the release of glucose from maltose. It was found to be ca. 30% higher than that of aposymbiotic (*Chlorella*-free) paramecia. The increase was attributed mainly to an increase of maltase activity of the host's cytoplasm because isolated PV possessed only ca. 3% of the total maltase activity. This result suggests that maltose is transported across the PV membrane before it is used in the host's cytoplasm.