

Effects of acrylamide on the symbiotic association of algae with the ciliate
Paramecium bursaria

Toshiyuki TAKAHASHI, Toshikazu KOSAKA and Hiroshi HOSOYA

(Department of Biological Science, Graduate School of Science, Hiroshima University)

The monomeric, but not the polymeric, form of acrylamide induces carcinogenic or neurotoxic effects in both humans and laboratory animals. However, the mechanism of acrylamide toxicity to living organisms, including humans, is poorly understood. The present study aimed to investigate the mechanisms of acrylamide toxicity using a green paramecium, *Paramecium bursaria*. A previous report revealed that acrylamide induces a decrease in endosymbiotic algae in *P. bursaria* (Takahashi *et al.*, *Toxicol. in Vitro*, 2005). In the present study, we monitored the proliferation of endosymbiotic algae throughout the host cell cycle in the presence of acrylamide to quantify the toxicity of acrylamide on the endosymbiotic algae. The results demonstrated that treatment with acrylamide (10 µg/ml) suppressed algal proliferation in the host cell. After treatment with acrylamide, several larger algal cells were observed in the host cells. This suggests that acrylamide induces multinuclear cells by interfering with algal cytokinesis.