Evaluation of Food safety of *Agaricus blazei* Murrill Extract in vitro Chromosomal Aberration Test

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The use of complementary and alternative medicine (CAM) has become common among many cancer patients worldwide. Cancer patients who do not improve or feel beneficial effects from ordinary medicine expect CAM to cure their disease, prolong life, alleviate symptoms, improve their quality of life and boost their immune system. *Agaricus blazei* is widely used among cancer patients in Japan but no scientific evidence supports their safety. In order to evaluate the food safety, we perform the chromosome aberration test in Chinese hamster ovary cells (CHO-K1) treated with *Agaricus blazei* Murrill extract in vitro. Different concentrations (5, 2.5, 1.25, 0.625 and 0.3125 mg/ml) of *Agaricus blazei* Murrill were used in the following conditions: (i) treatment by metabolic activation S9 for 3 h; (ii) treatment by no metabolic activation S9 for 3 h; and (iii) treatment by no metabolic activation S9 for 20 h. After all the above treatments, the cells were harvested after exposed to Colcemid. The frequencies of chromosomal aberrations were determined in the first metaphase after treatment. A total at 100 metaphases per treatment were scored. For the chromosome and chromatid structures alterations, the chromosome break, chromosome deletion, chromatid gap, chromatid break, chromatid deletion, triradial, quadriradial, ring, complex chromosomal rearrangement, dicentric, polyploidy and pulverized cell were all observed in the experiments displayed except chromosome gap. The numbers of abnormal cells per 100 cells in 5 experiment groups were around 0.5 to 3 cells fewer than 12 to 26 cells of positive controls. *Agaricus blazei* Murrill extract was not genotoxic in CHO cells.

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