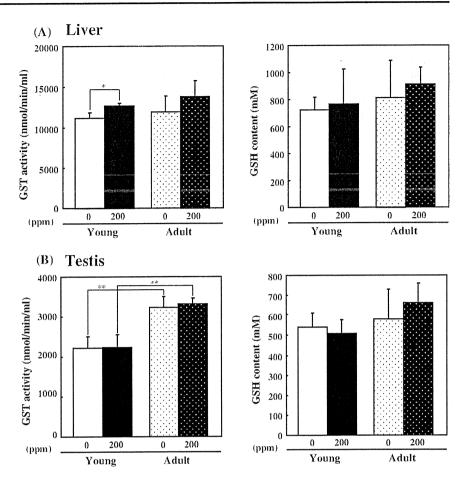
Fig. 8 GST activity and GSH contents in the liver (a) and testis (b) of young and adult rats given ACR at 0 or 200 ppm for 4 weeks. Data are mean \pm SD. *. **P < 0.05 and P < 0.01



Acknowledgments This work was supported by Health and Labour Sciences Research Grants (Research on Food Safety) from the Ministry of Health, Labour and Welfare of Japan. We thank Miss Ayako Kaneko for technical assistance in conducting the animal study.

References

Burlinson B, Tice RR, Speit G, Agurell E, Brendler-Schwaab SY, Collins AR, Escobar P, Honma M, Kumaravel TS, Nakajima M, Sasaki YF, Thybaud V, Uno Y, Vasquez M, Hartmann A (2007) Fourth international workgroup on genotoxicity testing: results of the in vivo comet assay workgroup. Mutat Res 627:31–35

Exon JH (2006) A review of the toxicology of acrylamide. J Toxicol Environ Health B Crit Rev 9:397-412

Friedman MA, Zeiger E, Marroni DE, Sickles DW (2008) Inhibition of rat testicular nuclear kinesins (krp2; KIFC5A) by acrylamide as a basis for establishing a genotoxicity threshold. J Agric Food Chem 56:6024–6030

Ishii Y, Okamura T, Inoue T, Tasaki M, Umemura T, Nishikawa A (2009) Dietary catechol causes increased oxidative DNA damage in the livers of mice treated with acetaminophen. Toxicology 263:93-99

Kaplan ML, Murphy SD (1972) Effect of acrylamide on rotarod performance and sciatic nerve—glucuronidase activity of rats. Toxicol Appl Pharmacol 22:259–268

Ko MH, Chen WP, Lin-Shiau SY, Hsieh ST (1999) Age-dependent acrylamide neurotoxicity in mice: morphology, physiology, and function. Exp Neurol 158:37-46 Lee KY, Shibutani M, Kuroiwa K, Takagi H, Inoue K, Nishikawa H, Miki T, Hirose M (2005) Chemoprevention of acrylamide toxicity by antioxidative agents in rats-effective suppression of testicular toxicity by phenylethyl isothiocyanate. Arch Toxicol 79:531-541

Moser VC (1991) Investigations of amitraz neurotoxicity in rats. IV.

Assessment of toxicity syndrome using a functional observational battery. Fundam Appl Toxicol 17:7-16

Papp S, Robaire B, Hermo L (1994) Developmental expression of the glutathione S-transferase Yo subunit in the rat testis and epididymis using light microscope immunocytochemistry. Anat Rec 240:345-357

Parzefall W (2008) Minireview on the toxicity of dietary acrylamide. Food Chem Toxicol 46:1360–1364

Peltola V, Huhtaniemi I, Ahotupa M (1992) Antioxidant enzyme activity in the maturing rat testis. J Androl 13:450-455

Shell L, Rozum M, Jortner BS, Ehrich M (1992) Neurotoxicity of acrylamide and 2, 5-hexanedione in rats evaluated using a functional observational battery and pathological examination. Neurotoxicol Teratol 14:273–283

Sickles DW, Sperry AO, Testino A, Friedman M (2007) Acrylamide effects on kinesin-related proteins of the mitotic/meiotic spindle. Toxicol Appl Pharmacol 222:111-121

Suzuki K, Pfaff LD (1973) Acrylamide neuropathy in rats. An electron microscopic study of degeneration and regeneration. Acta Neuropathol 24:197-213

Takahashi M, Shibutani M, Inoue K, Fujimoto H, Hirose M, Nishikawa A (2008) Pathological assessment of the nervous and male reproductive systems of rat offspring exposed

- maternally to acrylamide during the gestation and lactation periods—a preliminary study. J Toxicol Sci 33:11-24
- Takahashi M, Shibutani M, Nakahigashi J, Sakaguchi N, Inoue K, Morikawa T, Yoshida M, Nishikawa A (2009) Limited lactational transfer of acrylamide to rat offspring on maternal oral administration during the gestation and lactation periods. Arch Toxicol 83:785-793
- Tates AD, Dietrich AJJ, de Vogel N, Neuteboom I, Bos A (1983) A micronucleus method for detection of meiotic micronuclei in male germ cell of mammals. Mutat Res 121:131-138
- Tice RR, Agurell E, Anderson D, Burlinson B, Hartmann A, Kobayashi H, Miyamae Y, Rojas Y, Ryu JC, Sasaki YF (2000) Single cell gel/comet assay: guidelines for in vitro and
- in vivo genetic toxicology testing. Environ Mol Mutagen 35:206-221
- WHO/IPCS (2006) Summary and conclusions of the sixty-fourth meeting of the Joint FAO/WHO Expert Committee on Food Additives (JECFA) Rome, 8-17 February 2005. summary_report_64_final.pdf.Available from: http://www.who.int/ipcs/food/jecfa/summaries/en/i
- Yousef MI, El-Demerdash FM (2006) Acrylamide-induced oxidative stress and biochemical perturbations in rats. Toxicology 219: 133-141
- Zhang X, Cao J, Jiang L, Geng C, Zhong L (2009) Protective effect of hydroxytyrosol against acrylamide-induced cytotoxicity and DNA damage in HepG2 cells. Mutat Res 664:64–68

