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### **OA** Decrease in Hepatic Drug-Metabolizing Enzyme Activities after Removal of Rats from Pine Bedding

**Authors:** Davey, Andrew Keith; Fawcett, John Paul; Lee, Soo Eng; Chan, Kwok Kay; Schofield, John C.

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**Abstract:**

Wood is often used as a contact bedding material for laboratory animals. It has been established that wood, particularly softwood, has the potential to induce hepatic drug-metabolizing enzymes. However, to the authors' knowledge, changes in enzyme activity after removal of animals from bedding have not been characterized. The purpose of the study reported here was to determine how hepatic ethoxyresorufin-O-deethylation and *p*-nitrophenol hydroxylation activities alter over time after removal of rats from pine bedding. Male rats, three to four months old, raised in cages containing pine bedding, were transferred to wire-bottomed cages. At various times thereafter (up to 84 days), groups of rats were euthanized and the liver was processed to obtain microsomes. The microsomal protein and total cytochrome P450 (CYP) content and enzyme activities were determined. Significant differences in total microsomal protein or total CYP values were not observed over the 84 days, but a decrease in ethoxyresorufin-O-deethylation and *p*-nitrophenol hydroxylation activities was detected. For *p*-nitrophenol hydroxylation, the decrease was exponential, with a half-life of approximately nine days, whereas for ethoxyresorufin-O-deethylation, a rapid decrease in activity in the first week was followed by a reduced rate of decrease thereafter. Enzyme activities did not stabilize for at least six weeks. Researchers using laboratory animals should, therefore, be aware that it takes several weeks for enzyme activities to stabilize once animals are removed from the bedding.

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