*Fd Cosmet. Toxicol.* Vol. 8, pp. 325–337. Pergamon Press 1970. Printed in Great Britain

# TOXICOLOGY: ABSTRACTS AND COMMENTS

## FLAVOURINGS, SOLVENTS AND SWEETENERS

### 1945. Enzyme induction by eucalyptol

Jori, A., Bianchetti, A. & Prestini, P. E. (1969). Effect of essential oils on drug metabolism. *Biochem. Pharmac.* **18,** 2081.

It is well known that the response to barbiturates may be modified by pesticides such as DDT, which stimulate the liver processing enzymes (*Cited in F.C.T.* 1969, **7,** 537). This paper describes the modifying effect of some constituents of essential oils on the pharmacological response to drugs in the rat.

Eucalyptol (I), oil of *Pinus pumilio* (II) (containing pinene, phellandrene, dipentene, sylvestrene and bornyl acetate), α-pinene, β-pinene, guaiacol or menthol, in single doses of 500 mg/kg, were injected subcutaneously into rats, followed after 18 or 36 hr by a 25-mg/kg dose of pentobarbitone given intraperitoneally. I, but not the other compounds, caused a significant decrease in pentobarbitone sleeping time, which in the 18-hr-pretreated rats was reduced by nearly 50%. Less marked reductions occurred with a dose of 250 or 125 mg I/kg. A significant reduction was also noted when the interval between I (500 mg/kg) and pentobarbitone (30 mg/kg) administration was increased to 36 hr, but not when the interval was 7 or 48 hr.

When pentobarbitone was injected in a dose of 30 mg/kg, 18 or 36 hr after 500 mg I/kg, the brain concentration of pentobarbitone 90 min later was significantly lower than in controls untreated with I. II had no such effect. I administered by aerosol inhalation at a rate of 50 mg/min for a total of 30 or 90 min spread over 4 days, followed after 18 hr by 30 mg pentobarbitone/kg given intraperitoneally, significantly reduced sleeping time and decreased pentobarbitone brain levels. Both these effects disappeared when the interval between I and pentobarbitone administration was increased to 72 hr. Neither II administered by aerosol for a total of 90 min over 4 days nor α- and β-pinene given for 60 min over 4 days had any significant effect.

Administration of I to rats over 4 days in doses of 500 mg/kg/day subcutaneously or at a rate of 50 mg/min for a total of 90 min by aerosol significantly increased the metabolites formed from *p*-nitroanisole, aminopyrine and aniline added to 9000 **g** supernatant of liver homogenate from these rats (i.e. *p*-nitrophenol, 4-aminoantipyrine and *p*-aminophenol, respectively). Again this effect was not found with II.

This stimulation of liver-enzyme activity by I is important in view of the compound's wide use in pharmaceutical preparations, disinfectant sprays and air fresheners. The possibility that other common components of these products may have similar effects cannot be ignored.