Turkish Journal of Medical Sciences

Turkish Journal

of

Medical Sciences

In-Vitro Effect of Phthalate Esters on Retinal Aldolase

Syed Nasir ASKARI[1]
Meena ZAIDI[2]
Nafees AHMAD[3]

[1]Institute of Ophthalmology, J.N. Medical College, Aligarh Muslim University, Aligarh 202001, UP, INDIA

[2]Institute of Ophthalmology, Aligarh Muslim University, Aligarh 202002, UP, INDIA
[3]Department of Biochemistry, Institute of Ophthalmology, Aligarh Muslim University, Aligarh 202002, UP, INDIA

Keywords
Authors

medsci@tubitak.gov.tr

Scientific Journals Home Page

Abstract: Background and Aim: Phthalate esters used in the manufacture of cosmetics, lubricants, medical devices and wood furnishings enter the human system through various routes and accumulate into tissues to a considerable level. Low levels of plasticizer cause infertility, hypospadias and premature puberty, while high doses of esters can damage the liver and lung. Reports on the ocular effects of these compounds are either not available or very scarce. The present study assessed the impact of dimethyl phthalate (DMP), diethyl-phthalate (DEP) and diethyl hexyl-phthalate (DEHP) on bovine retinal aldolase. Materials and Methods: Retinal aldolase activity of 0.1 ml of 1:10 solution of dialyzed retinal homogenate was assayed at 540 nm. The aldolase activity of the retinal homogenate after incubation in the above-mentioned tubes of DMP, DEP and DEHP was similarly assayed. Results: In the present study, the aldolase activity of the retina was significantly inhibited by phthalate esters and was directly proportional to the molecular size of esters. When comparing the sum of the mean values of the tested esters, the inhibition of aldolase activity increased in the following order - DEHP < DMP < DEP. Conclusion: Based on our results, we suggest that exposure to phthalate esters should be avoided in order to reduce the risk of ocular damage.

Key Words: DMP, DEP, DEHP, phthalate ester, retina

Turk J Med Sci 2006; **36**(4): 231-234.
Full text: pdf
Other articles published in the same issue: Turk J Med Sci,vol.36,iss.4.