

# LABORATORY REPORTS

## Aflatoxin B<sub>1</sub> and Reproduction

### I. Reproductive Performance in Female Rats

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#### ABSTRACT

An experimental group of female rats was exposed to aflatoxin B<sub>1</sub> at a dose of 7.5mg/kg body weight daily for 14 days through oral intubation. A deleterious effect on the gonads and embryotoxicity in the experimental animals were observed. There were reductions in ovarian and uterine sizes, increases in fetal resorption, implantation loss, and intra-uterine death. The data showed significant disturbances in oestrus cycle, inhibition of lordosis, and reductions in the conception rates and litter sizes, suggesting severe impairment of fertility in the aflatoxin exposed rats. An aflatoxin blood level of  $86.2 \pm 1.3$ ppb was recovered in the experimental animals. (*Afr J Reprod Health* 1997;1(2):79–84)

#### RÉSUMÉ

##### L'aflatoxine B<sub>1</sub> et reproduction

##### I. La performance reproductive des rats femelles

Une dose quotidienne d'aflatoxine, à raison de 7.5/kg de poids de corps, a été administrée par intubation orale à un groupe expérimental de rats femelles, et ce pendant quatorze jours. Un effet nuisible sur les gonades et une toxicité embryonnaire étaient apparus chez les animaux expérimentaux. Par ailleurs, les phénomènes suivants étaient observés: une réduction de la taille des ovaires et de l'utérus, un accroissement de la résorption foetale, des implantations infructueuses et des décès intra-utérins. Les données indiquaient des troubles significatifs dans le cycle de l'oestrus, une inhibition de la lordose, une baisse des taux de conception et une réduction des tailles de grapat, suggérant une baisse radicale de fertilité chez les rats exposés à l'aflatoxine. Un taux d'aflatoxine de  $86.2 \pm 1.3$ ppb était récupéré dans le sang des animaux expérimentaux. (*Afr J Reprod Health* 1997;1(2):79–84)

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KEY WORDS: Aflatoxin, reproductive performance, rats

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Table 4 The effect of aflatoxin on female rats' sex hormones

Parameters	Groups of Rat	
	I (control)	II (7.5mg/kg)
Oestradiol (nmol/L)	92.2 ± 5.32	53.7 ± 4.72**
Progesterone (nmol/L)	15.0 ± 0.32	23.7 ± 1.41**
Parallel study result on male sex hormones:		
Testosterone (control rats)	9.93 ± 3.72	(test rat) 16.32 ± 2.46*
Cortisol (control rats)	11.53 ± 0.72	(test rat) 14.54 ± 6.63*

Values expressed as means ± standard error (n = 5 rats)

\* =  $p < 0.05$ , \*\* =  $p < 0.01$

sible regular dietary exposure to the toxin. Therefore, there is a need for further studies to ascertain the relationship between aflatoxin and human reproductive health.

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