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## DETOXIFICATION OF AFLATOXIN BY GARLIC AND SOME HOMOEOPATHIC DRUGS

## SUSHMA CHAUHAN and V. BHARGAVA

Department of Botany, University of Allahabad, Allahabad - 211 002, India.

Garlic and homeopathic drugs reduced the aflatoxin  $B_1$  present in oil seeds of *Brassica compestris*, *Linum usitatissiumum* and *Sesamum indicum* to the recommended level approved by World Health Organization and a minimum dose of 40% garlic or 1000 ppm of sulphur or Bacillinium detoxify the aflatoxin  $B_1$  in the substrate.

Keywords: Aflatoxin; Garlic; Homeopathic drugs; Oil seeds.

Quantitative studies show the presence of aflatoxin in oil seeds of Brassica compestris, Linum usitatissium and Sesamum indicum in more than the recommended level as approved by World Health Organisation i.e. 20 µg/kg1. This aflatoxin passes into oils when extracted from infested seeds and pose a serious health hazard when consumed, due to their carcinogenic nature. Therefore, it is necessary to detoxify the aflatoxin contents in the substrate. Some of the spices and selected homoeopathic drugs are used as an inhibitor of aflatoxin production<sup>2-4</sup>. In the present work garlic extract and some homoeopathic drugs namely Rhustox, Sulphur, Bacillinium have been screened as a possible detoxificants against aflatoxin present in oil seeds of B. compestris, L usitatissimum and S. indicum.

Contaminated samples of oil seeds were shaken for half an hour on a mechanical shaker in 10, 20 and 40% garlic extract and 500, 1000 and 2000 ppm of three homoeopathic drugs (Potency - 30) viz., Rhustox, Sulphur and Bacillinium and then kept stationary. Untreated seeds were used as control. Aflatoxin was extracted from treated and controlled seeds with chloroform<sup>5</sup> and quantity was estimated spectrophotometrically.

Table 1 shows that 10 and 20%

garlic reduced the AFB<sub>1</sub> present in B. compestris (43.0 µg/kg) to 7.0 and 4.2 µg/kg and in S. indicum (22.0 µg/kg) to 2.5 and 1.2 µg/kg respectively. AFB<sub>1</sub> was completely detoxified by 40% garlic in both the seeds. In L. usitatissimum (AFB<sub>1</sub>-81.2 µg/kg), garlic extract reduced the appreciable amount of AFB<sub>1</sub> but failed to detoxify it.

Table 2 shows that a mininum dose of 1000 ppm of Sulphur or Bacillinium detoxified AFB, present in *B. compestris*, *S. indicum* and *L. usitatissimum* while 1000 ppm of Rhustox or 500 ppm of Sulphur or Bacillinium only reduced the quantity of AFB,.

Therefore, the present findings indicate that garlic and homoeopathic drugs can bring down the quantity of AFB, present in the substrate to the recommended level. A minimum dose of 40% garlic or 1000 ppm of Sulphur or Bacillinium can also be used as a prominent detoxificant against aflatoxin B, and garlic, a commonly used condiment has no adverse effect on human health.

## Acknowledgement

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Keferences

Table 1 Efficacy of garlic extract against aflatoxin in oil seeds.

Table 1. Efficacy of gartic e	Natural contamination of AFB, (µg/kg)	Treatment	Concentration in %	Quantitty of AFB <sub>1</sub> (µg/kg) after treatment
	43.0 9 51215	Garlic extract	10	7.0
Brassica compestris	43.0		20	4.2
	Gababadan Fi Ir (M2b) (odio	M "DECIBURILY HE ADE	40	0.0
		-do-	10	21.2
Linum usitatissimum 81.2 81.2			20	17.0
leaH bhoW. vd bavara	e recommended level ap	digot musican intens	40	15.0
i Newson municipal	1000 ppm of sulphur or	o piling sing to sail	timed in 10 box in	2.5
Sesamum indicum	22.0	-40-	20	d nixote to 1.2 reis as
onced aucleic ac	id increase was a	osi Mossossthic drass	situal in Abraham	about XXX 0.0

Table 2. Antitoxic activity of homoeopathic drugs against aflatoxin B, in oil seeds, 10 and words as ibute available and

Substrate Natural contamination of AFB <sub>1</sub> (µg/kg)	Treatment waiter	Concentration in ppm	Quantitty of AFB, (µg/kg) after treatment
in substrate signical	red bloow vd ba	evel as approve	recommended l
Brassica compestris 43.0 and diad	green actions in extracted	1000	37.0 14.9 12.0 12.0 16 116
appreciable amount of AFB, but failed to	Sulpitur	1000 2000	from 10.21 sted beauth 0.0 0.0 and w
Table 2 shows that a mininum dose	Bacillinium Ol	2000	carcin 4.5 enic necession to det
Linum usitatissimum 81.2	Rhustox are used as	500 1000	48.2 40.00 24.0 30157
pom of Rhustox or 500 ppm of Sulphar bracellinium only reduced the quantity of AFB12 land	Sulphur Sala	500 1000	10.0 Trace
iluthofefore, the present findings	Bacillinium (I	ood 500 d main	0.0
indicate that garlic and homoeopathic drugs can 0.22 g down the quantion numese?  Dresentrain the substrate to the	Rhustox	noo 500 to abas	9.0 193310 4.2 111111111111111111111111111111111111
reconsmended level. A minimum dose of AQR gartic or 1000 ppm of Sulphur or	Sulphur	lated same les e	7.2
Bacillinium can also be used as a prominent detoxificant against aflatoxin B.	Bacillinium	500	4.6 002 0.0 351X
and garlie, a commonly used condiment has no suverse offeet on human hasthagers and	ency - 30)		hree b@nocopa oz., Khustox, Su

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used as control. Aflatoxim was extracted

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