TABLE 1

Qualitative aflatoxin analysis of positive oilseed cake samples.

Sr. No.	Name of feed sample	Total samples	Aflatoxin B_1	B_2	G_1	G_2
1.	Deoiled groundnut cake	6	6	1	4	0
2.	Expeller groundnut cake	7	7	0	6	0
3.	Deoiled cottonseed cake	2	2	0	2	0
4.	Deoiled *kardi cake*	3	3	0	0	0
5.	Deoiled *salseed* cake	8	8	0	5	0
6.	Deoiled soybean cake	1	1	1	1	1
7.	Deoiled sunflower cake	1	1	0	0	0
8.	Deoiled *sheria* cake	1	1	1	0	0
9.	Expeller *sheria* cake	1	1	1	0	0
10.	Deoiled *ambadi* cake	1	1	0	0	0
11.	Deoiled rubberseed cake	1	1	1	0	0

	Deoiled cake	Expeller cake
Samples collected	40	10
Samples positive for aflatoxin	24	8
Percentage of aflatoxin positive samples	60%	80%

per cent of G_1 and practically nil for G_2. While positive samples of expeller cake have shown 100 per cent presence of B_1, 12·5 per cent of B_2, 75 per cent of G_1 and practically nil for G_2.

Out of the different cakes tested it is seen that expeller cakes particularly of groundnut cake are positive to a larger extent than the deoiled samples. However, deoiled *salseed* and *sheria* cake samples are 100 per cent positive.

Clifford and Rees (1966), Sporn, Wesley and Wogan (1966), Allcroft and Roberts (1968) and Nagarajan *et al* (1973b) have also reported that the expeller cakes were positive to a larger extent than that of deoiled cake of the same oil seed. The results of the present investigation are in line with the results of above workers.

However, Ashworth, Schroeader and Langley (1965) and Carnaghan (1965) could not obtain the aflatoxins from freshly harvested groundnuts and all groundnut meal samples respectively. The probable reason explained by these workers is that microbial competition governed by the kernel and moisture; limits aflatoxin content of kernels.

Qualitative results for cereal and damaged grains are given under Table 2.

TABLE 2

Qualitative aflatoxin analysis of positive cereal and damaged grain samples.

Sr. No.	Name of feed sample	Total samples	Aflatoxins B_1	B_2	G_1	G_2
1.	Barley	1	1	0	1	0
2.	*Banti*	1	1	0	1	0
3.	Maize	3	3	0	0	0
4.	Damaged *Jowar*	1	1	0	0	0
5.	Damaged Wheat	3	3	0	0	0

	Cereal grains	Damaged grains
Samples collected	6	7
Samples positive for aflatoxins	5	4
Percentage of aflatoxin positive samples	83·3%	57·1%

It is observed from the above table that 83·3 per cent of cereal grains and 57·1 per cent of damaged cereal grains were positive for aflatoxins or aflatoxin like substances. The probable reason for higher positive percentage of cereal grains as compared to damaged cereal grains may be that the damaged grains are short of some principles needed for the growth and toxin production. Further it is seen that 100 per cent of the positive cereal grains have shown presence of B_1. While 40 per cent of the

positive cereal grains have shown the presence of aflatoxin G_1. All the samples were negative for aflatoxin B_2 and G_2.

The above findings are in agreement with the results reported by Stubblefield, Shotwell, Hesseltine, Smith and Hall (1967), Frank (1968), Nagarajan *et al* (1971), Marasas and Smalley (1972) and Tripathi (1973).

However, Nagarajan *et al* (1971) could not find as much aflatoxin in Opaque-2 as in Decan hybrid variety of maize. The probable reason may be the varietal difference and resistance of such varieties to produce aflatoxins.

The qualitative results for cereal byproducts and other miscellaneous feeds are given under Table 3.

TABLE 3

Qualitative aflatoxin analysis of positive cereal byproducts and other miscellaneous feeds.

Sr. No.	*Name of feed sample*	*Total samples*	*Aflatoxins* B_1	B_2	G_1	G_2
1.	Maize grit	1	1	0	0	0
2.	Maize gluten	1	1	0	0	0
3.	Rice bran	1	1	0	1	0
4.	Wheat bran	1	1	0	0	0
5.	Mango kernels	1	1	0	0	0
6.	Tapioca	2	2	0	0	0

	Cereal byproducts	*Misc. feeds*
Samples collected	25	7
Samples positive for aflatoxins	4	3
Percentage of aflatoxin positive samples	16%	42·8%

It is evident from the above table that 16 per cent of cereal byproducts and 42·8 per cent of miscellaneous feed samples were positive for aflatoxin. It is also observed that 100 per cent of both positive cereal by-products and miscellaneous feeds have shown the presence of aflatoxin B_1 while 25 per cent of the positive cereal byproducts have shown the presence of G_1. Aflatoxin B_2 and G_2 are absent in all the samples studied.

The above qualitative results of cereal byproducts and miscellaneous feeds are more or less similar to the results reported by Stubblefield *et al* (1967), Frank (1968), Marasas and Smalley (1972) and Nagarajan *et al* (1973a).

However, Nagarajan *et al* (1973a) could not obtain the aflatoxins from tapioca and have reported that the substance present was aflatoxin like factor.

The qualitative results for compounded cattle feeds are given in Table 4.

TABLE 4

Qualitative analysis of aflatoxin positive compounded cattle feeds.

Sr. No.	*Code No.*	*Total sample*	*Aflatoxin* B_1	B_2	G_1	G_2
1.	A12	1	1	0	1	0
2.	M11	1	1	0	0	0
3.	S13	1	1	0	1	0
4.	B2	1	1	0	0	0
5.	B3	1	1	0	0	0

	Compounded cattle feeds
Samples collected	8
Samples positive for aflatoxin	5
Percentage of aflatoxin positive samples	62·5%

It is apparent from the table that 62·5 per cent compounded cattle feeds were positive for aflatoxins. Further it can be also observed that 100 per cent of

the positive compounded feeds have shown the presence of B_1 and 40 per cent of G_1. While aflatoxin B_2 and G_2 were absent in these feeds.

Compounded feeds do contain aflatoxins which may be due to some ingredients which were positive for aflatoxins. This also reveals that even the high temperature in pelleting has not helped in getting rid of these toxins.

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