Table 11

Incidence and number of hyperplastic and neoplastic lesions in the lung

Group No.	Treatment Dammar resin	No. of animals	Hyperplasia		Adenoma		Carcinoma		Total tumor	
			Incidence (%)	Multiplicity	Incidence (%)	Multiplicity	Incidence (%)	Multiplicity	Incidence (%)	Multiplicity
1	0	15	15 (100)	29.1±11.3	6 (40.0)	0.5±0.8	1 (6.7)	0.1±0.3	7 (46.7)	0.6±0.8
2	0.03%	15	15 (100)	20.2±6.2	1 (6.7)	0.1±0.3	1 (6.7)	0.1±0.3	2 (13.3)	0.1±0.4
3	2%	15	15 (100)	24.6±7.6	5 (33.3)	0.4±0.6	1 (6.7)	0.1±0.3	6 (40.0)	0.5±0.6

Table 12
Aberrant Crypt foci (ACF) data

Group No.	Treatment Dammar resin	No. of animals	1 crypt	2 crypts	3 crypts	$\geqq$ 4 crypts	Total
1	0	15	28 ± 8	96.9 ± 21.5	88.1 ± 19.3	124.1 ± 29.7	337.2 ± 60.7
2	0.03%	15	32.9 ± 15.8	78.6 ± 21.6	84 ± 19.1	128.9 ± 25.5	324.4 ± 64.2
3	2%	15	33.1 ± 14	111.3 ± 36.8	100.9 ± 21.9	150.3 ± 38.6	395.5 ± 91.8

Table 13

Effects of Kojic acid and IQ on body weight (g)

Treatment	No. of animals	week									
		0	1	2	3	4	5	6	7	8	9
DMBDD+											
0	13	107.47	130.84	145.99	134.20	132.64	154.09	183.69	198.17	208.71	222.85
0.01%IQ	13	107.95	129.94	143.23	132.04	127.88	149.51	177.29	193.34	203.91	213.53
2.0%Kojic acid	14	107.55	129.49	144.47	140.05	139.43	154.17	181.52	192.35	201.11	107.55
DMBDD-											
0	6	132.27	167.47	199.60	225.95	248.27	266.48	285.60	297.10	309.32	323.05
0.01%IQ	6	133.05	169.58	200.62	226.40	248.45	265.87	287.52	296.75	307.58	318.22
2.0%Kojic acid	6	132.22	166.03	196.13	221.23	241.15	253.87	273.35	274.12	288.88	132.22

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Table 13 (continued)

Effects of Kojic acid and IQ on body weight (g)

Treatment	No. of animals	week								
		10	11	12	13	14	15	16	17	18
DMBDD+										
0	13	232.73	237.25	243.10	248.33	252.32	257.45	262.89	270.15	263.38
0.01%IQ	13	226.74	230.30	236.26	240.41	244.12	246.62	250.92	256.46	251.27
2.0%Kojic acid	14	210.45*	218.97*	221.64*	227.36*	235.85*	236.01*	237.58*	243.77*	246.36*
DMBDD-										
0	6	334.88	341.03	350.53	359.68	365.23	369.57	377.32	387.13	381.32
0.01%IQ	6	329.28	333.42	343.02	351.53	352.47	362.37	368.42	378.92	374.68
2.0%Kojic acid	6	296.05*	304.33*	310.62*	320.10*	327.37*	329.47*	334.02*	339.42*	347.95*

*Significantly different from control group.

Table 14

Water intake (g/day/rat)

Treatment	No. of animals	week								
		1	2	3	4	5	6	7	8	9
DMBDD+										
0	13	19.71	16.79	15.11	10.14	10.39	14.32	16.77	16.00	16.16
0.01%IQ	13	16.03	16.03	14.14*	8.81	9.82	12.98	15.10	14.30	14.21
2.0%Kojic acid	14	13.08	15.65	16.53	10.52	11.13	12.99	15.11*	14.56	13.77*
DMBDD-										
0	6	18.93	20.42	22.52	21.47	22.02	21.66	21.24	22.34	22.11
0.01%	6	18.51	19.47	21.67	20.79	21.53	21.22	20.79	20.81	20.63
2.0%Kojic acid	6	17.77	19.28	20.28*	19.84*	19.98	19.32	20.43	18.87	20.37

*Significantly different from control group.

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Table 14 (continued)

Water intake (g/day/rat)

Treatment	No. of animals	week								
		10	11	12	13	14	15	16	17	18
DMBDD+										
0	13	15.19	14.78	16.32	14.76	13.98	14.47	13.68	14.88	15.58
0.01%IQ	13	13.44	14.45	15.21	13.71	13.14	13.40	14.06	13.52	13.86
2.0%Kojic acid	14	13.43	13.12*	13.91*	14.58	12.85	12.98	12.92	12.97	13.04
DMBDD-										
0	6	20.49	21.06	22.22	19.97	18.93	20.43	19.69	17.93	20.38
0.01%IQ	6	18.27	19.70	22.51	20.04	18.93*	19.81*	19.92	21.04*	21.19*
2.0%Kojic acid	6	19.79	17.85	21.38	18.36	17.83	17.99*	17.84	17.82	18.71*

*Significantly different from control group.

Table 15

Food intake (g/day/rat)

Treatment	No. of animals	week								
		1	2	3	4	5	6	7	8	9
DMBDD+										
0	13	8.28	10.64	7.15	5.29	7.13	11.86	12.50	12.14	12.71
0.01%IQ	13	8.29	10.30	7.05	4.73	6.52	10.44*	11.77	11.79	12.20
2.0%Kojic acid	14	8.67	10.89	8.16	6.21	7.42	10.43	12.57	11.71	12.37
DMBDD-										
0	6	13.74	14.11	15.24	15.40	16.88	16.37	16.32	15.56	16.77
0.01%	6	14.48	15.04	15.21	15.34	17.12	15.99	15.72	15.53	16.73
2.0%Kojic acid	6	13.73	15.12	15.26	15.58	16.61	12.73	15.96	13.68	16.18

*Significantly different from control group.

Table 15 (continued)

Food intake (g/day/rat)

Treatment	No. of animals	week								
		10	11	12	13	14	15	16	17	18
DMBDD+										
0	13	12.23	11.87	12.47	10.79	10.59	10.69	10.87	11.59	11.31
0.01%IQ	13	11.72	11.94	12.36	10.67	10.96	10.41	10.78	11.22	11.76
2.0%Kojic acid	14	10.75	11.02	11.65	10.56	10.67	10.55	10.67	10.80	9.92
DMBDD-										
0	6	15.70	15.73	16.88	15.04	14.85	14.46	15.16	15.77	15.96
0.01%IQ	6	16.07	15.69	18.27	14.69	14.90	14.73	14.95	15.82	16.94
2.0%Kojic acid	6	13.66	13.47	16.56	15.30	13.89	13.30	13.35	14.09	15.09

Table 16

Intake of IQ and Kojic acid

Treatment	No. of animals	Total intake (mg/kg b.w.)	Average intake (mg/kg b.w./day)
DMBDD+			
0	13	0	0
0.01%IQ	13	611.7	4.9
2.0%Kojic acid	14	139704.0	1108.8
DMBDD-			
0	6	0	0
0.01%IQ	6	692.1	5.5
2.0%Kojic acid	6	143587.0	1139.6

Table 17
Effects Kojic acid and IQ on final body weight (g)

Treatment	No. of animals	Final body weigt (g)
DMBDD+		
0	13	263.4 ± 17.1
0.01%IQ	13	263.4 ± 17.1
2%Kojic acid	14	238.2 ± 24.3 *
DMBDD−		
0	6	381.3 ± 15.3
0.01%IQ	6	374.7 ± 19.0
2.0%Kojic acid	6	340.7 ± 17.6 *

*Significantly different from control group.

Table 18

Data on organ weights

Treatment	No. of animals	Liver		Kidney	
		Absolute (g)	Relative (g)	Absolute (g)	Relative (g)
DMBDD+					
0	13	5.47±0.60	2.22±0.11	1.79±0.11	0.73±0.11
0.01%IQ	13	6.17±1.06 *	2.50±0.16*	1.79±0.11	0.73±0.03
2.0%Kojic acid	14	6.16±1.10 *	2.50±0.21*	1.52±0.10 *	0.62±0.04 *
DMBDD−					
0	6	9.57±0.71	3.88±0.11	2.12±0.13	0.86±0.11
0.01%IQ	6	10.58±0.74 *	4.29±0.18 *	2.17±0.16	0.88±0.03
2.0%Kojic acid	6	9.87±0.68 *	4.01±0.22 *	1.92±0.12 *	0.78±0.04 *

*Significantly different from control group.

Table 18 (continued)

Data on organ weights

Treatment	No. of animals	Spleen		Heart	
		Absolute (g)	Relative (g)	Absolute (g)	Relative (g)
DMBDD+					
0	13	1.12±0.14	0.46±0.01	0.89±0.08	0.36±0.05
0.01%IQ	13	1.14±0.11	0.46±0.02	0.88±0.05	0.36±0.01
2.0%Kojic acid	14	1.09±0.15 *	0.44±0.03 *	0.75±0.05 *	0.31±0.01 *
DMBDD-					
0	6	0.68±0.06	0.27±0.01	0.91±0.04	0.37±0.01
0.01%IQ	6	0.68±0.02	0.28±0.02	0.92±0.05	0.37±0.05
2.0%Kojic acid	6	0.77±0.08 *	0.31±0.03 *	0.89±0.05 *	0.36±0.01

*Significantly different from control group.

Table 18 (continued)

Data on organ weights

Treatment	No. of animals	Thyroid		Adrenal	
		Absolute (mg)	Relative (mg)	Absolute (mg)	Relative (mg)
DMBDD+					
0	13	10.2±1.8	0.004±0.001	43±4	0.017±0.002
0.01%IQ	13	11.0±1.4	0.004±0.002	44±6	0.018±0.002
2.0%Kojic acid	14	152.6±36.7 *	0.062±0.020 *	59±7 *	0.024±0.001 *
DMBDD-					
0	6	20.7±2.8	0.008±0.001	42±12	0.017±0.002
0.01%IQ	6	24.0±6.2	0.010±0.002	47±6	0.019±0001
2.0%Kojic acid	6	110.7±17.4 *	0.010±0.002 *	54±7 *	0.022±0001 *

*Significantly different from control group.

Table 18 (*continued*)
Data on organ weights

Treatment	No. of animals	Testis Absolute (g)	Testis Relative (g)
DMBDD—			
0	6	3.12±0.07	0.83±0.04
0.01%IQ	6	3.11±0.08	0.82±0.03
2.0%Kojic acid	6	3.06±0.10*	0.90±0.03*

*Significantly different from control group.

Table 19

Development of GST-P positive foci in livers (Diameter $\geqq$ 0.2mm)

Treatment	No. of animals	No. of foci (No./cm²)	Area of foci (mm²/cm²)
DMBDD+			
0	13	2.9 ± 1.8	0.295 ± 0.186
0.01%IQ	13	11.6 ± 7.5 *	0.755 ± 0.440 *
2.0%Kojic acid	14	6.8 ± 3.6 *	0.697 ± 0.427 *
DMBDD-			
0	6	0.0 ± 0.0	0.000 ± 0.000
0.01%IQ	6	0.0 ± 0.0	0.000 ± 0.000
2.0%Kojic acid	6	0.0 ± 0.0	0.000 ± 0.000

*Significantly different from control group.

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Table 20
Incidence and number of hyperplastic and neoplastic lesions in the thyroid

Group No.	Treatment	No. of animals	Hyperplasia, follicular cell		Adenoma follicular cell		Carcinoma follicular cell		Total tumor	
			Incidence (%)	Multiplicity	Incidence (%)	Multiplicity	Incidence (%)	Multiplicity	Incidence (%)	Multiplicity
1	0	13	13 (100)	3.1±2.2	7 (46.7)	0.7±0.9	4 (26.7)	0.3±0.5	8 (53.3)	1.0±1.1
2	0.01% IQ	13	13 (100)	2.7±2.2	5 (33.3)	0.5±0.7	1 (6.7)	0.1±0.4	6 (40.0)	0.5±0.7
3	2% Kojic acid	14	14 (100)	7.7±2.8	14 (100.0)	5.7±2.6*	2 (14.2)	2.0±1.4	14 (100)	6.0±3.0*

*:Significantly different from control group.

Table 21
Incidence and number of hyperplastic and neoplastic lesions in the kidney.

Group No.	Treatment	No. of animals	Atypical tuble hyperplasia		Renal cell papilloma		Renal cell carcinoma		Nephroblastoma		Total tumor	
			Incidence (%)	Multiplicity	Incidence (%)	Multiplicity	Incidence (%)	Multiplicity	Incidence (%)	Multiplicity	Incidence (%)	Multiplicity
1	0	13	11 (84.6)	1.0±0.8	0 (0)	0	0 (0)	0	1 (7.6)	0.1±0.3	0	0
2	0.01% IQ	13	7 (53.8)	0.6±0.7	1 (7.6)	0.1±0.3	0 (0)	0	0 (0)	0	1 (7.6)	0.1±0.3
3	2% Kojic acid	14	5 (35.7)	0.4±0.6	2 (15.4)	0.1±0.4	0 (0)	0	0 (0)	0	2 (14.3)	0.1±0.4

Table 22
Incidence and number of hyperplastic and neoplastic lesions in the bladder.

Group	Treatment	No. of animals	PN hyperplasia Incidence (%)	Multiplicity	Papilloma Incidence (%)	Multiplicity	Transitional cell carcinoma Incidence (%)	Multiplicity	Total tumor Incidence (%)	Multiplicity
1	0	13	4 (30.8)	0.3±0.6	1 (7.6)	0.1±0.3	2 (13.3)	0.1±0.4	3 (20.0)	0.2±0.4
2	0.01% IQ	13	4 (30.8)	0.3±0.5	1 (7.6)	0.1±0.3	0 (0)	0	1 (7.6)	0.1±0.3
3	2% Kojic acid	14	3 (21.4)	0.3±0.7	0 (0)	0	0 (0)	0	0 (0)	0

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Table 23
Incidence and number of hyperplastic and neoplastic lesions in the lung.

Group No.	Treatment	No. of animals	Hyperplasia Incidence (%)	Multiplicity	Adenoma Incidence (%)	Multiplicity	Carcinoma Incidence (%)	Multiplicity	Total tumor Incidence (%)	Multiplicity
1	0	13	13 (100)	20.2±6.2	1 (7.6)	0.1±0.3	1 (7.6)	0.1±0.3	2 (13.3)	0.2±0.4
2	0.01% IQ	13	13 (100)	29.1±11.3	6 (46.2)	0.5±0.8	1 (7.6)	0.1±0.3	7 (53.8)	0.6±0.8
3	2% Kojic acid	14	14 (100)	25.4±7.6	2 (14.3)	0.4±0.6	0 (0)	0	2 (14.3)	0.3±0.8

Table 24
Aberrant Crypt foci (ACF) data

Group No.	Treatment	No. of animals	1 crypt	2 crypts	3 crypts	$\geqq$ 4 crypts	Total
1	0	15	14.5±7.3	33.3±9.3	35.1±9.0	36.2±9.6	100.7±11.3
2	0.01% IQ	15	16.7±7.7	43.1±10.2 *	41.8±12.5	42.7±10.4 *	144.2±17.5 *
3	2% Kojic acid	15	12.1±6.3	24.3±15.3	30.0±14.5	34.4±9.2	119.1±14.4

*:Significantly different from control group.