

Appendix 3

Table 109: Mean consumption of paper disc treated with different concentration of *A. galanga* essential oil by ten *C. gestroi*, *C. curvignathus* and *M. carbonarius* in dual choice assay for 24 hours.

Termite species	Dosage	Percentage of antifeeding activity	
		<i>A. galanga oil</i>	<i>C. indicum oil</i>
		24 hours	24 hours
<i>C. gestroi</i>	1275 mg/kg	4.93 ± 5.30	18.16 ± 6.56
	2550 mg/kg	34.40 ± 7.52	36.07 ± 5.66
	5100 mg/kg	51.97 ± 5.16	66.63 ± 6.10
	6200 mg/kg	52.51 ± 2.74	66.98 ± 4.87
<i>C. curvignathus</i>	753 mg/kg	1.70 ± 0.63	4.08 ± 1.99
	1506 mg/kg	8.16 ± 6.06	5.91 ± 4.37
	3012 mg/kg	51.70 ± 5.18	65.13 ± 7.59
	6024 mg/kg	54.07 ± 1.24	68.81 ± 3.91
<i>M. carbonarius</i>	410 mg/kg	5.82 ± 3.56	5.09 ± 4.81
	820 mg/kg	6.61 ± 3.10	6.63 ± 4.56
	1640 mg/kg	52.43 ± 6.08	63.16 ± 5.06
	3280 mg/kg	54.39 ± 0.89	67.75 ± 3.17

Weight of *C. gestroi*: 9.8 mg/10 termite

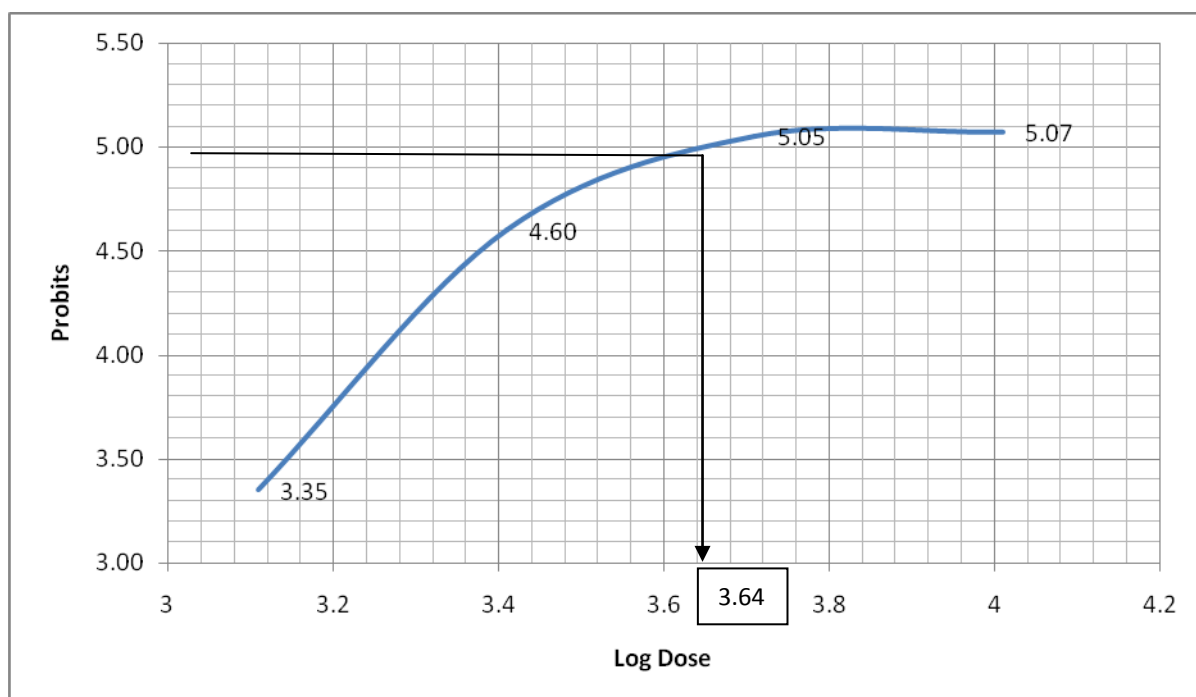
Weight of *C. curvignathus*: 16.6 mg/10 termite

Weight of *M. carbonarius*: 30.5 mg/10 termite

Table 110: Results of the effective doses of *A. galanga* essential oil for the determination of ED₅₀ after dual choice antifeeding bioassay with termite, *C. gestroi* (n=10)

Group	Dose (mg/kg)	Log Dose	% antifeeding activity	Probits
1	1275	3.11	4.93	3.35
2	2550	3.41	34.40	4.60
3	5100	3.71	51.97	5.05
4	10200	4.01	52.51	5.07

Figure 1. Plot of log-doses versus probits from Table 2 for calculation of ED₅₀ of *A. galanga* essential oil.

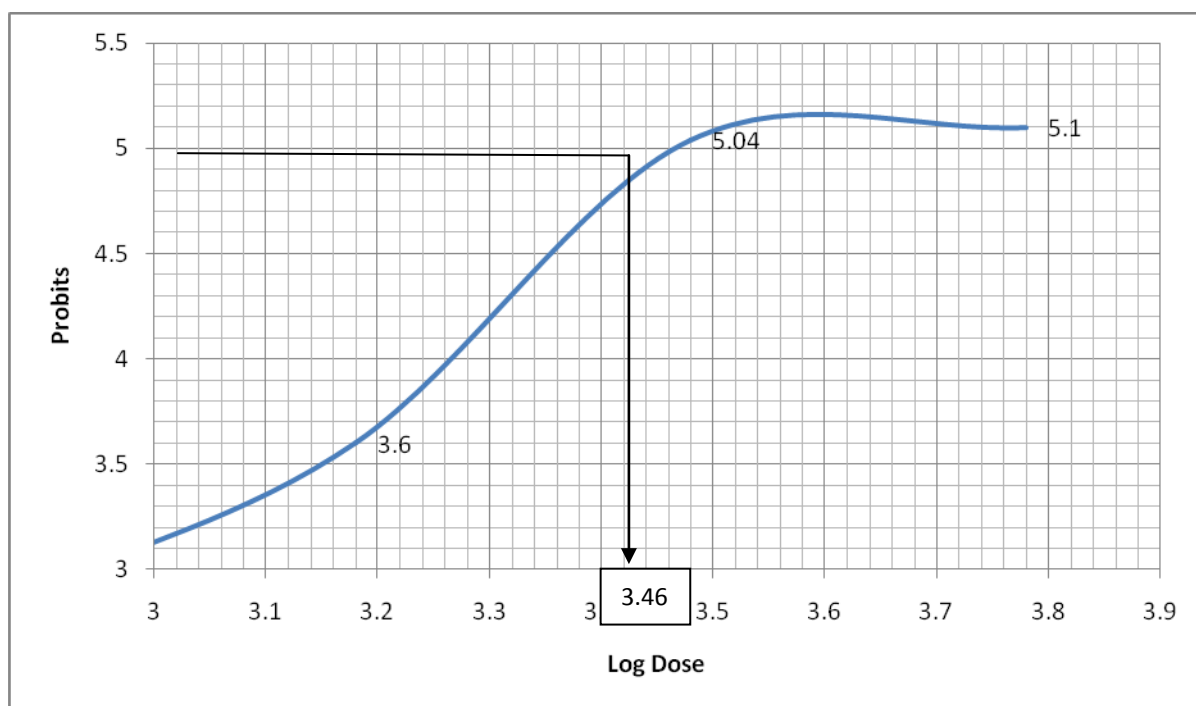


The probit values are plotted against log-doses and then the dose corresponding to probit 5, i.e., 50%, is found out (**Figure 1**). In the present case the Log ED₅₀ is 3.64 and ED₅₀= 4365 mg/kg.

Table 111: Results of the effective doses of *A. galanga* essential oil for the determination of ED₅₀ after dual choice antifeeding bioassay with termite, *C. curvignathus* (n=10)

Group	Dose (mg/kg)	Log Dose	% antifeeding activity	Probits
1	753	2.88	1.70	2.87
2	1506	3.18	8.16	3.60
3	3012	3.48	51.70	5.04
4	6024	3.78	54.07	5.10

Figure 2. Plot of log-doses versus probits from Table 3 for calculation of ED₅₀ of *A. galanga* essential oil.

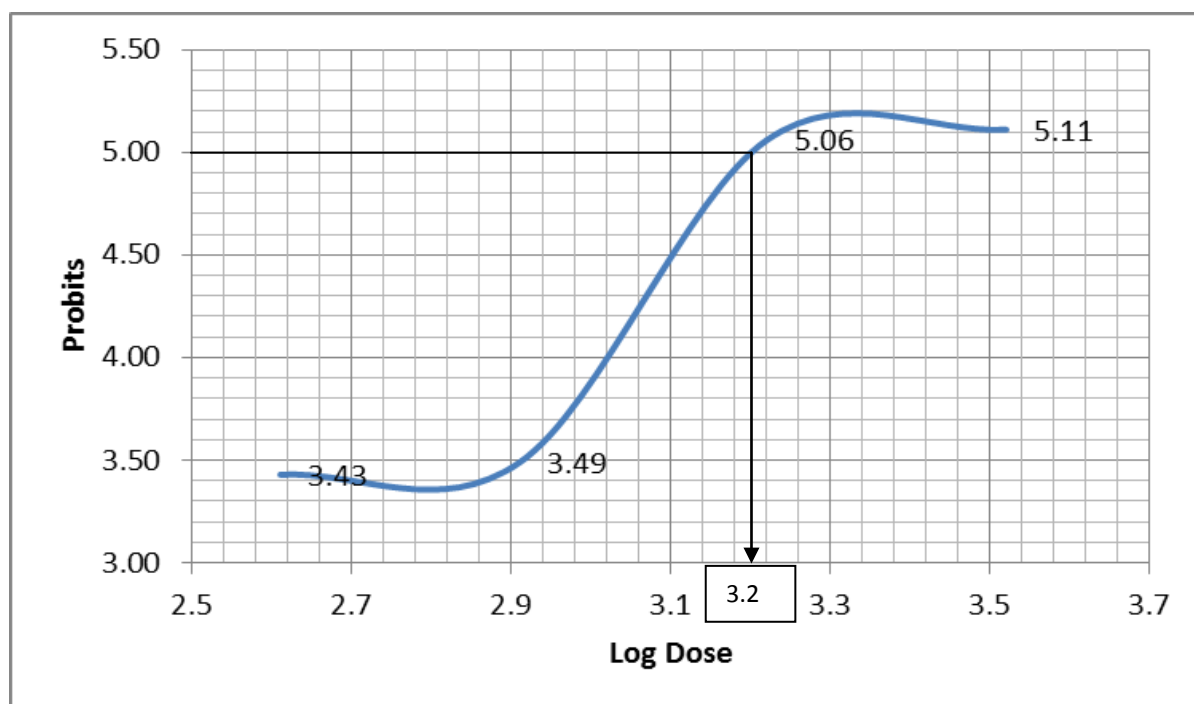


The probit values are plotted against log-doses and then the dose corresponding to probit 5, i.e., 50%, is found out (**Figure 2**). In the present case the Log ED₅₀ is 3.46 and ED₅₀= 2884 mg/kg.

Table 112: Results of the effective doses of *A. galanga* essential oil for the determination of ED₅₀ after dual choice antifeeding bioassay with termite, *M. carbonarius* (n=10)

Group	Dose (mg/kg)	Log Dose	% antifeeding activity	Probits
1	410	2.61	5.82	3.43
2	820	2.91	6.61	3.49
3	1640	3.22	52.43	5.06
4	3280	3.52	54.39	5.11

Figure 3. Plot of log-doses versus probits from Table 4 for calculation of ED₅₀ of *A. galanga* essential oil.

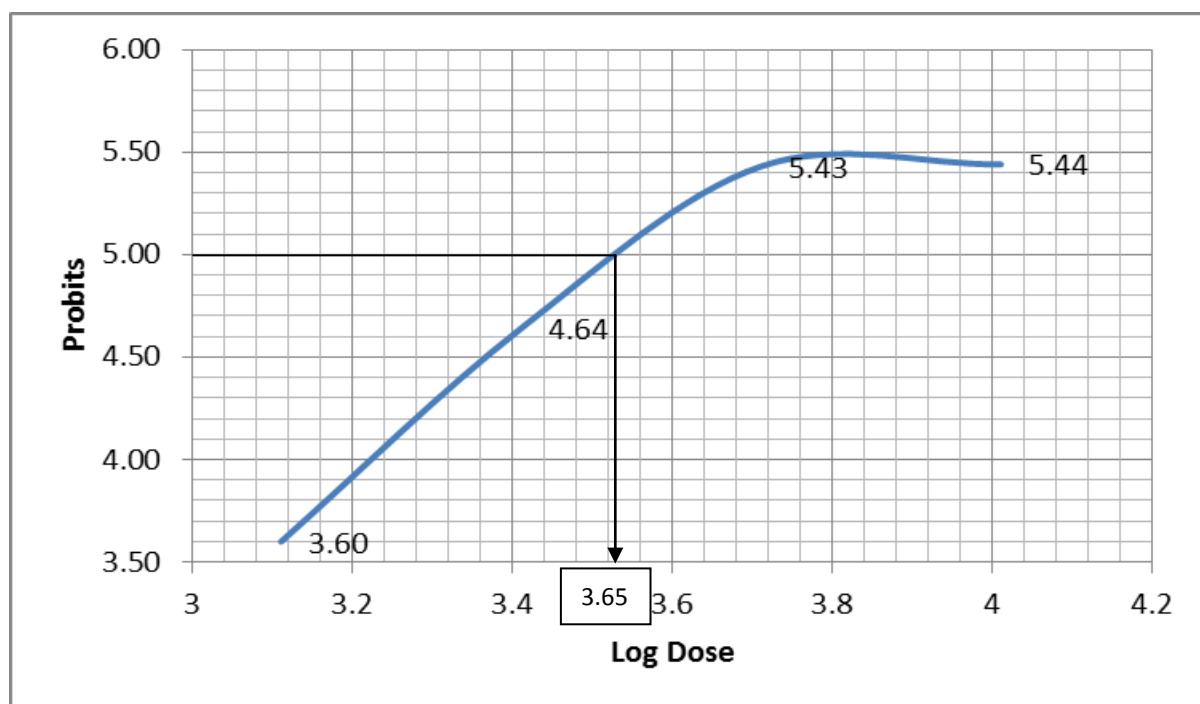


The probit values are plotted against log-doses and then the dose corresponding to probit 5, i.e., 50%, is found out (**Figure 3**). In the present case the Log ED₅₀ is 3.2 and ED₅₀= 1585 mg/kg.

Table 113: Results of the effective doses of *C. indicum* essential oil for the determination of ED₅₀ after dual choice antifeeding bioassay with termite, *C. gestroi* (n=10)

Group	Dose (mg/kg)	Log Dose	% antifeeding activity	Probits
1	1275	3.11	18.16	3.60
2	2550	3.41	36.07	4.64
3	5100	3.71	66.63	5.43
4	10200	4.01	66.98	5.44

Figure 4. Plot of log-doses versus probits from Table 5 for calculation of ED₅₀ of *C. indicum* essential oil.

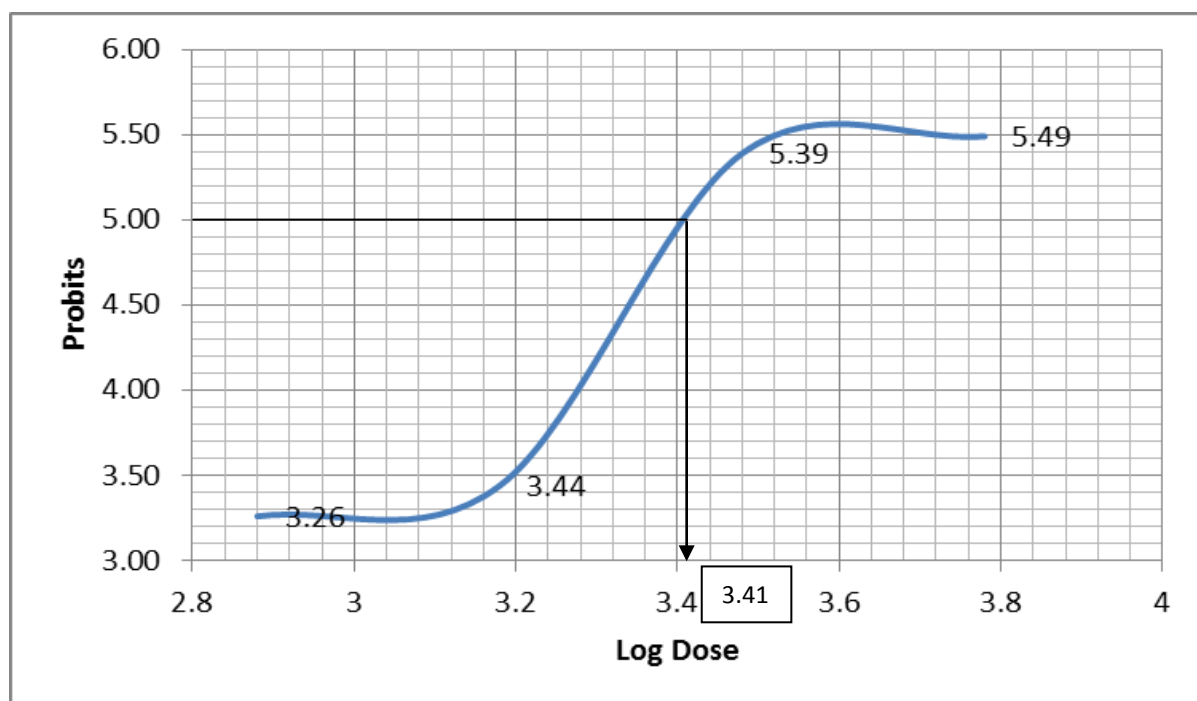


The probit values are plotted against log-doses and then the dose corresponding to probit 5, i.e., 50%, is found out (**Figure 4**). In the present case the Log ED₅₀ is 3.65 and ED₅₀= 4467 mg/kg.

Table 114: Results of the effective doses of *C. indicum* essential oil for the determination of ED₅₀ after dual choice antifeeding bioassay with termite, *C. curvignathus* (n=10)

Group	Dose (mg/kg)	Log Dose	% antifeeding activity	Probits
1	753	2.88	4.08	3.26
2	1506	3.18	5.91	3.44
3	3012	3.48	65.13	5.39
4	6024	3.78	68.81	5.49

Figure 5. Plot of log-doses versus probits from Table 6 for calculation of ED₅₀ of *C. indicum* essential oil.

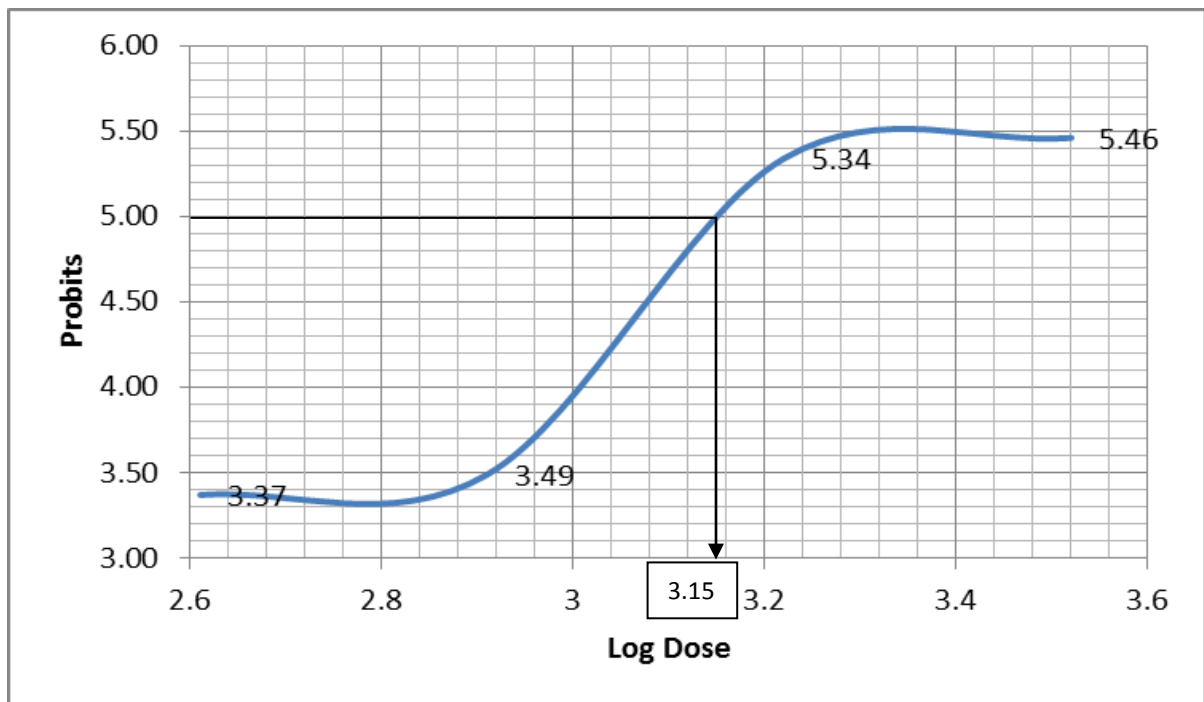


The probit values are plotted against log-doses and then the dose corresponding to probit 5, i.e., 50%, is found out (**Figure 5**). In the present case the Log ED₅₀ is 3.41 and ED₅₀= 2570 mg/kg.

Table 115: Results of the effective doses of *C. indicum* essential oil for the determination of ED₅₀ after dual choice antifeeding bioassay with termite, *M. carbonarius* (n=10)

Group	Dose (mg/kg)	Log Dose	% antifeeding activity	Probits
1	410	2.61	5.09	3.37
2	820	2.91	6.63	3.49
3	1640	3.22	63.16	5.34
4	3280	3.52	67.75	5.46

Figure 6. Plot of log-doses versus probits from Table 7 for calculation of ED₅₀ of *C. indicum* essential oil.



The probit values are plotted against log-doses and then the dose corresponding to probit 5, i.e., 50%, is found out (**Figure 6**). In the present case the Log ED₅₀ is 3.15 and ED₅₀= 1413 mg/kg.

Table 116. Consumption of paper disc treated with synthetic compound, 1, 8-cineol and farnesene by ten *C. gestroi*, *C. curvignathus* and *M. carbonarius* in dual choice assay for 24 hours.

Termite species	Dosage	Percentage of antifeeding activity	
		1,8-cineol	Farnesene
		24 hours	24 hours
<i>C. gestroi</i>	255 mg/kg	5.48 ± 4.78	6.84 ± 5.32
	510 mg/kg	47.99 ± 6.02	7.29 ± 4.38
	1275 mg/kg	58.77 ± 5.54	56.37 ± 5.53
	2550 mg/kg	60.96 ± 5.48	58.09 ± 3.91
<i>C. curvignathus</i>	151 mg/kg	3.84 ± 3.01	6.02 ± 3.80
	301 mg/kg	6.00 ± 5.04	10.27 ± 6.18
	753 mg/kg	56.23 ± 5.88	58.50 ± 8.39
	1506 mg/kg	61.18 ± 6.64	59.01 ± 4.83
<i>M. carbonarius</i>	82 mg/kg	4.11 ± 2.00	5.91 ± 5.10
	164 mg/kg	14.98 ± 5.69	6.02 ± 3.68
	410 mg/kg	60.69 ± 4.61	7.32 ± 4.79
	820 mg/kg	61.41 ± 1.95	57.17 ± 2.44

Weight of *C. gestroi*: 9.8 mg/10 termite

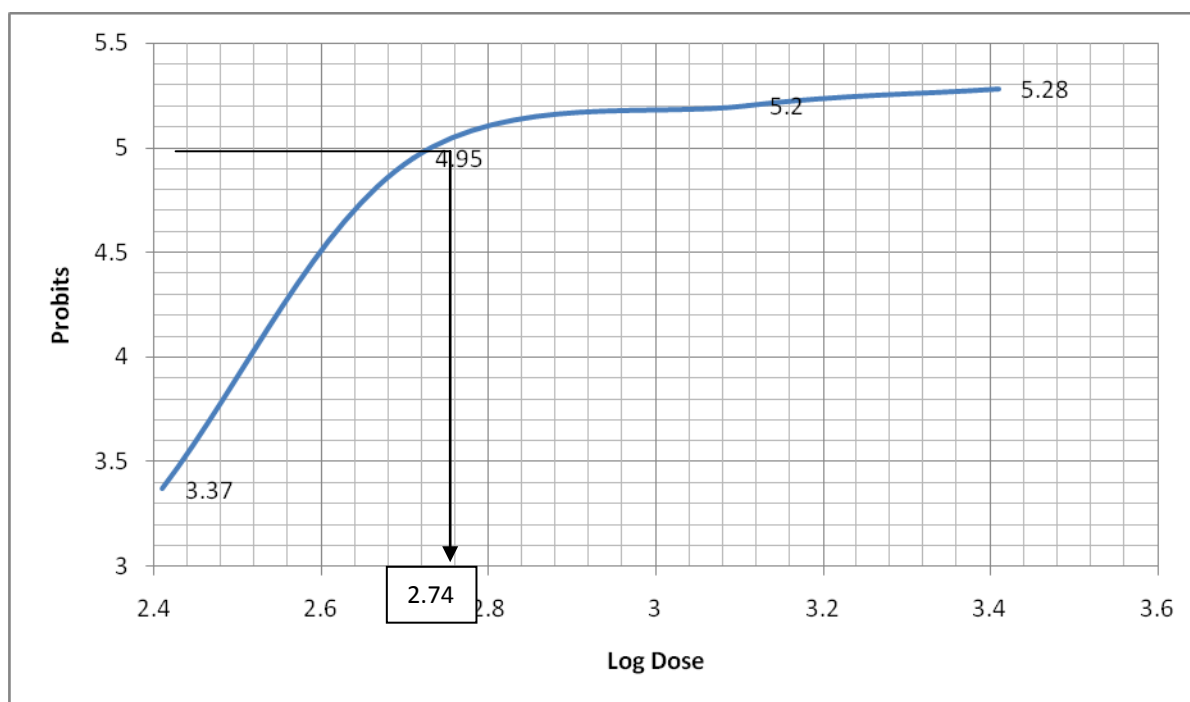
Weight of *C. curvignathus*: 16.6 mg/10 termite

Weight of *M. carbonarius*: 30.5 mg/10 termite

Table 117: Results of the effective doses of 1,8-cineol for the determination of ED₅₀ after dual choice antifeeding bioassay with termite, *C. gestroi* (n=10)

Group	Dose (mg/kg)	Log Dose	% antifeeding activity	Probits
1	255	2.41	5.48	3.37
2	510	2.71	47.99	4.95
3	1275	3.11	58.77	5.20
4	2550	3.41	60.96	5.28

Figure 7. Plot of log-doses versus probits from Table 9 for calculation of ED₅₀ of 1,8-cineol.

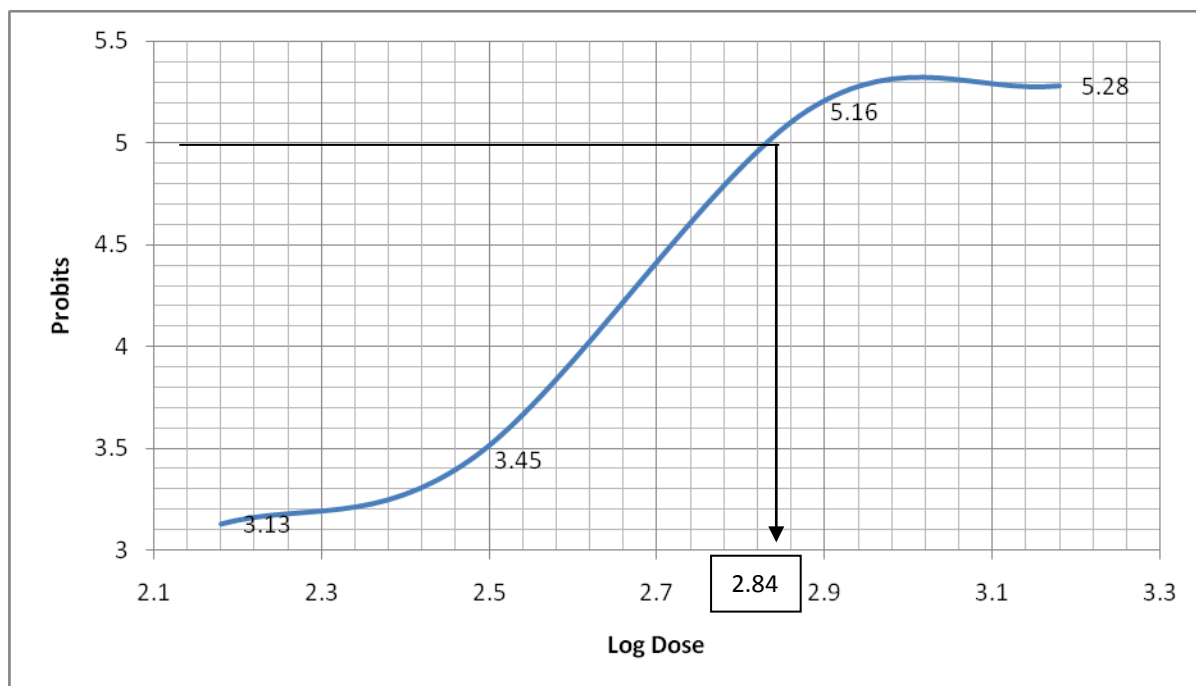


The probit values are plotted against log-doses and then the dose corresponding to probit 5, i.e., 50%, is found out (**Figure 7**). In the present case the Log ED₅₀ is 2.74 and ED₅₀= 550 mg/kg.

Table 118: Results of the effective doses of 1,8-cineol for the determination of ED₅₀ after dual choice antifeeding bioassay with termite, *C. curvignathus* (n=10)

Group	Dose (mg/kg)	Log Dose	% antifeeding activity	Probits
1	151	2.18	3.84	3.13
2	301	2.48	6.00	3.45
3	753	2.88	56.23	5.16
4	1506	3.18	61.18	5.28

Figure 8. Plot of log-doses versus probits from Table 10 for calculation of ED₅₀ of 1,8-cineol.

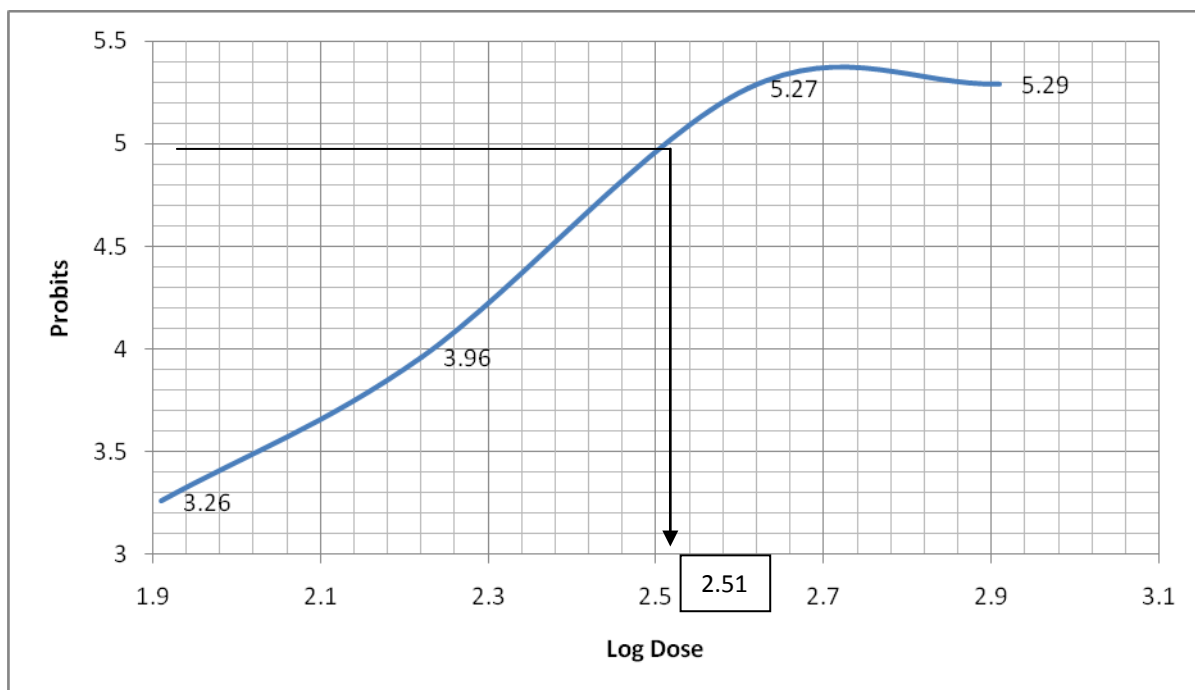


The probit values are plotted against log-doses and then the dose corresponding to probit 5, i.e., 50%, is found out (**Figure 8**). In the present case the Log ED₅₀ is 2.84 and ED₅₀= 692 mg/kg.

Table 119: Results of the effective doses of 1,8-cineol for the determination of ED₅₀ after dual choice antifeeding bioassay with termite, *M. carbonarius* (n=10)

Group	Dose (mg/kg)	Log Dose	% antifeeding activity	Probits
1	82	1.91	4.11	3.26
2	164	2.22	14.98	3.96
3	410	2.61	60.69	5.27
4	820	2.91	61.41	5.29

Figure 120. Plot of log-doses versus probits from Table 11 for calculation of ED₅₀ of 1,8-cineol.

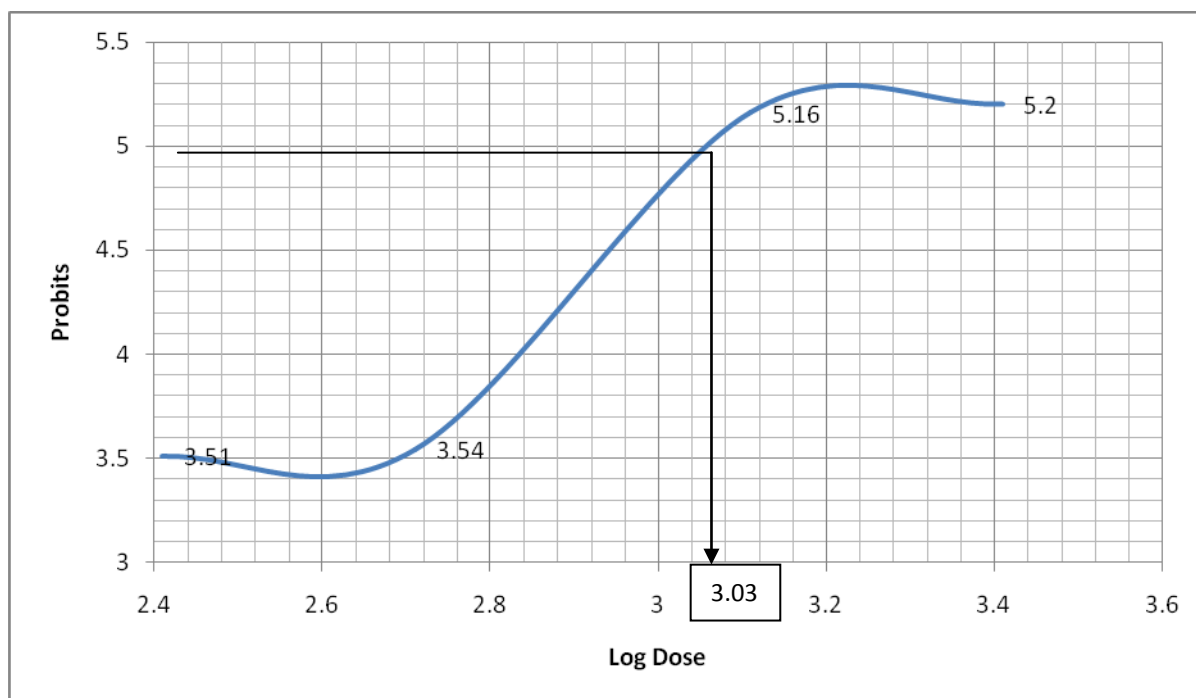


The probit values are plotted against log-doses and then the dose corresponding to probit 5, i.e., 50%, is found out (**Figure 9**). In the present case the Log ED₅₀ is 2.51 and ED₅₀= 324 mg/kg.

Table 121: Results of the effective doses of farnesene for the determination of ED₅₀ after dual choice antifeeding bioassay with termite, *C. gestroi* (n=10)

Group	Dose (mg/kg)	Log Dose	% antifeeding activity	Probits
1	255	2.41	6.84	3.51
2	510	2.71	7.29	3.54
3	1275	3.11	56.37	5.16
4	2550	3.41	58.09	5.20

Figure 10. Plot of log-doses versus probits from Table 12 for calculation of ED₅₀ of farnesene.

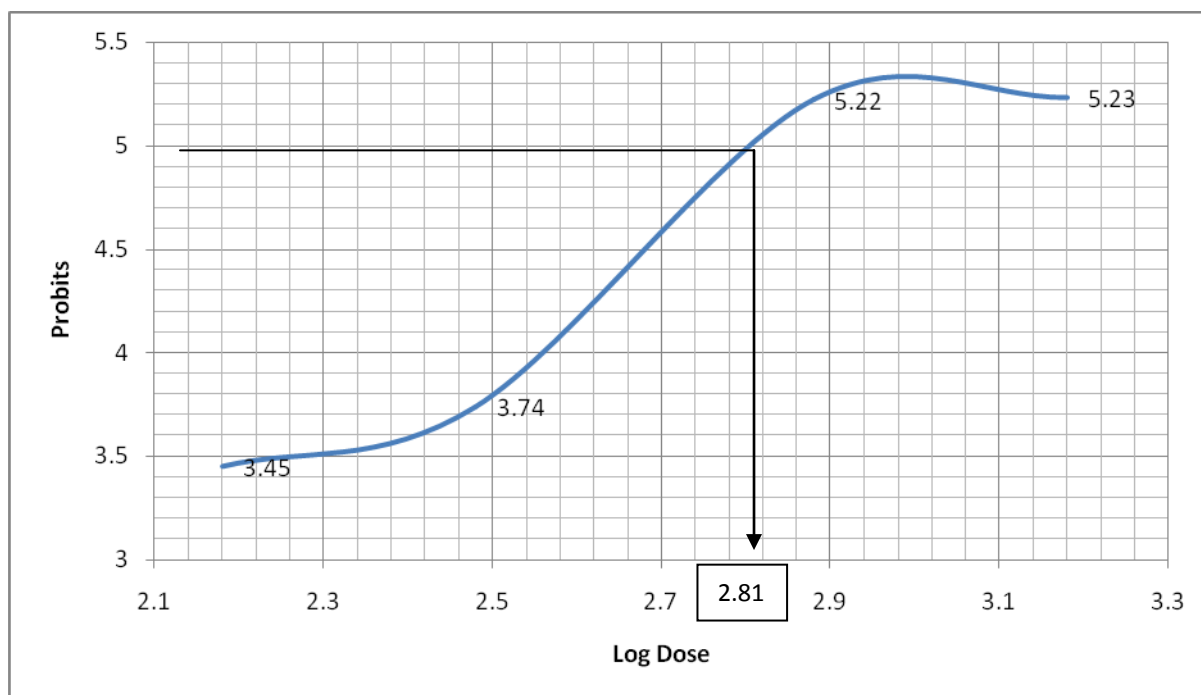


The probit values are plotted against log-doses and then the dose corresponding to probit 5, i.e., 50%, is found out (**Figure 10**). In the present case the Log ED₅₀ is 3.03 and ED₅₀= 1072 mg/kg.

Table 122: Results of the effective doses of farnesene for the determination of ED₅₀ after dual choice antifeeding bioassay with termite, *C. curvignathus* (n=10)

Group	Dose (mg/kg)	Log Dose	% antifeeding activity	Probits
1	151	2.18	6.02	3.45
2	301	2.48	10.27	3.74
3	753	2.88	58.50	5.22
4	1506	3.18	59.01	5.23

Figure 11. Plot of log-doses versus probits from Table 13 for calculation of ED₅₀ of farnesene.

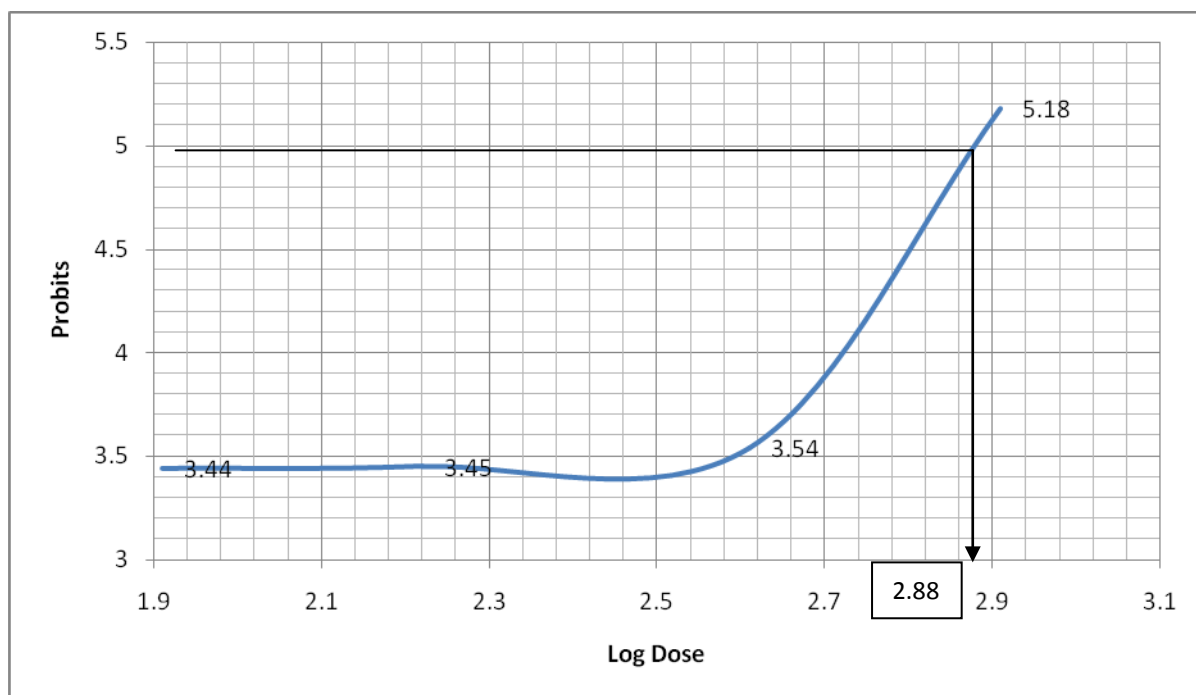


The probit values are plotted against log-doses and then the dose corresponding to probit 5, i.e., 50%, is found out (**Figure 11**). In the present case the Log ED₅₀ is 2.81 and ED₅₀= 646 mg/kg.

Table 123: Results of the effective doses of farnesene for the determination of ED₅₀ after dual choice antifeeding bioassay with termite, *M. carbonarius* (n=10)

Group	Dose (mg/kg)	Log Dose	% antifeeding activity	Probits
1	82	1.91	5.91	3.44
2	164	2.22	6.02	3.45
3	410	2.61	7.32	3.54
4	820	2.91	57.17	5.18

Figure 12. Plot of log-doses versus probits from Table 14 for calculation of ED₅₀ of farnesene.



The probit values are plotted against log-doses and then the dose corresponding to probit 5, i.e., 50%, is found out (**Figure 12**). In the present case the Log ED₅₀ is 2.88 and ED₅₀= 759 mg/kg.