BEHAVIOURAL RESPONSE OF *SITOPHILUS ORYZAE* (L.) AND *RHYZOPERTHA DOMINICA* (F.) TO THE FOOD ODOURS EXTRACTED FROM STORED PRODUCTS

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***Sitophilus oryzae* (Rice weevil)**




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***Rhyzopertha dominica* (Lesser grain borer)**



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Extraction of food odour

Sources of food odour

Wheat

Rice

Cassava chips

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Olfactometer

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Multichannel olfactometer

Y Tube

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BIOASSAY OF FOOD ODOUR

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Olfacto- response of *Sitophilus. oryzae* to the semiochemicals isolated from wheat in petroleum ether

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Response of *Sitophilus oryzae* to wheat odour extracted in hexane

Response (min.)	QUANTITY OF WHEAT (Kg)					
	1		2		5	
	Treated	Control	Treated	Control	Treated	Control
15	50.7	49.3	75.3	24.7	80.7	19.3
30	58.0	42.0	56.0	44.0	86.0	14.0
45	44.0	56.0	46.7	53.3	52.7	47.3
60	34.7	65.3	43.3	56.7	44.7	53.3
90	24.0	76.0	40.0	60.0	36.0	64.0

Response of *Sitophilus oryzae* to wheat odour extracted in petroleum ether

Response (min.)	QUANTITY OF WHEAT (Kg)					
	1		2		5	
	Treated	Control	Treated	Control	Treated	Control
15	73.3	26.7	72.7	27.3	50.0	50.0
30	77.3	22.6	60.0	40.0	44.0	56.0
45	75.3	24.7	75.3	24.7	40.0	60.0
60	44.0	56.0	58.7	41.3	38.0	62.0
90	36.0	64.0	47.3	52.7	25.3	74.7

Response of *Sitophilus oryzae* to wheat odour extracted in dichloromethane

Response (min.)	QUANTITY OF WHEAT (Kg)					
	1		2		5	
	Treated	Control	Treated	Control	Treated	Control
15	63.3	36.7	47.3	52.7	50.0	50.0
30	61.3	38.7	36.7	63.3	44.0	56.0
45	46.7	53.3	32.0	68.0	40.0	60.0
60	37.3	62.7	22.7	77.3	38.0	62.0
90	28.7	71.3	18.7	81.3	25.3	74.9

Response of *Rhyzopertha dominica* to wheat odour extracted in dichloromethane

Response (Min.)	QUANTITY OF WHEAT (Kg)					
	1		2		5	
	Treated	Control	Treated	Control	Treated	Control
15	22.7	77.3	51.3	48.7	53.3	46.7
30	32.0	68.0	19.3	80.7	49.3	50.7
45	46.0	54.0	16.0	84.0	42.0	58.0
60	47.3	52.7	30.7	69.3	53.3	46.7
90	37.3	62.7	22.0	78.0	46.7	53.3

Response of *Rhyzopertha dominica* to wheat odour extracted in petroleum ether

Response (min.)	QUANTITY OF WHEAT (Kg)					
	1		2		5	
	Treated	Control	Treated	Control	Treated	Control
15	34.7	65.3	51.3	48.7	53.3	46.7
30	30.7	59.3	19.3	80.7	49.3	50.7
45	28.7	71.3	16.0	84.0	42.0	58.0
60	50.0	50.0	30.7	69.3	53.3	46.7
90	66.7	33.3	22.0	78.0	46.7	53.3

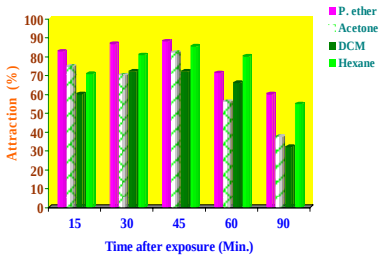
Response of *Rhyzopertha dominica* to wheat odour extracted in hexane

Response (min.)	QUANTITY OF WHEAT (Kg)					
	1		2		5	
	Treated	Control	Treated	Control	Treated	Control
15	16.6	83.4	82.7	17.3	27.3	72.7
30	14.0	86.0	68.7	31.3	22.0	78.0
45	9.3	90.7	60.7	39.3	32.7	67.3
60	8.0	92.0	48.0	52.0	25.3	74.7
90	4.7	95.3	46.7	53.3	20.0	80.0

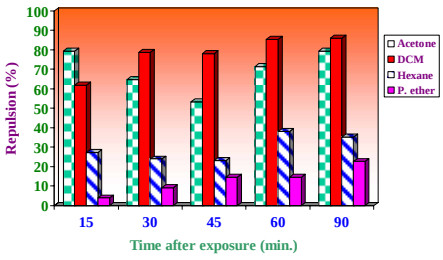
Response of *Rhyzopertha dominica* to wheat odour extracted in acetone

Response (min.)	QUANTITY OF WHEAT (Kg)					
	1		2		5	
	Treated	Control	Treated	Control	Treated	Control
15	27.3	72.7	42.7	57.3	33.3	66.7
30	26.0	74.0	50.0	50.0	44.7	55.3
45	19.3	80.7	47.3	52.7	36.0	64.0
60	17.3	82.7	43.3	56.7	46.7	53.3
90	15.3	84.7	37.3	62.7	30.7	69.3

Olfacto-response of *Sitophilus oryzae* to food odours extracted from cassava chips



Repulsive action of *Rhyzopertha dominica* to the chemicals isolated from cassava chips



CHARACTERIZATION

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TLC profile of wheat odour extracted in acetone

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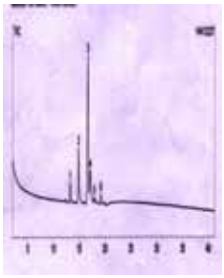
GC-MS study of wheat odour extracted in DCM

Retention time	Probable chemical
13.23	Decanoic acid, Nonanoic acid, Hexadecanoic acid, Octanoic acid
14.85	E2-Dodecenylacetate, 3-Octen-1-ol E3-Dodecenylacetate, 3-Octen-1-ol, 1,7- Octadene
16.65	2,3-Epoxyhexanol, 3-Hepten-2-one (Z), 3-Hepten-2-one, 1- Decyn-4-ol



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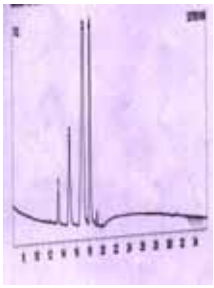
GC-MS study of wheat odour extracted in Hexane

Retention time	Probable chemical
13.34	Decanoic acid, Octadecanoic acid, dodecanoic acid, Nonanoic acid.
14.85	E2-Dodecenylacetate, E3-Dodecenylacetate, 3- Octen-1-ol, 1,3Nonadiene
17.15	1- Decyn-4-ol, 3-Hepten-2-one (Z), 2,3-Epoxyhexanol, 4-Decene
18.18	Octane,3,5- dimethyl, Heptane, 3,3,5- trimethyl, Octane,3,3-dimethyl



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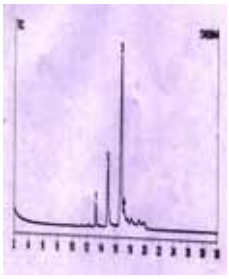
GC-MS study of wheat odour extracted in acetone

Retention time	Probable chemical
13.27	Decanoic acid, Hexadecanoic acid, Dodecanoic acid
14.91	E2-Dodecenylacetate, 1,3-Nonadiene (E), Dibutyl acetylene
16.75	1-Decyn-4-ol, 2,3-Epoxyhexanol, 3-Hepten-2-one (Z)



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Cassava chips extract in acetone

Sitophilus oryzae

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