

COCKROACH BAIT COMPOSITION

This invention relates to a cockroach bait composition. More particularly, this invention relates to a simple and economical cockroach bait composition having high effectiveness.

5 Cockroach bait compositions typically include an attractant material and a toxicant. Often these materials are formed together in a substrate so that the toxicant does not crumble thereby presenting a health hazard. Most prior cockroach bait compositions
10 kill cockroaches by essentially poisoning them after they consume a portion of the bait containing the toxicant.

The compositions of the present invention on the other hand, offer a dual activity by utilizing a
15 non-repellent contact insecticide in combination with a bait and a suitable substrate impregnated with the toxicant and bait material. Cockroaches and other crawling insects are killed using two modes of action; namely,
20 contact activity wherein the toxicant is absorbed by the insect's body and internal activity should the insect feed upon the insecticide containing bait. This dual function concept has greater kill potential than a bait which relies solely upon the insects
25 feeding upon the bait for its activity or solely upon contact activity.

It has there been surprisingly found that an improved cockroach bait composition can be formed comprising a cellulosic substrate impregnated with from

0.5 to 10% by weight of a composition comprising from 0.1 to 5 % by weight 2-isopropoxy phenyl N-methylcarbamate, from 20 to 70 % by weight of sugar attractant and from 10 to 80 % by weight of a solvent selected from the group consisting of water and water mixed with one or more organic non-repellent solvents which is substantially evaporated from the final composition.

The invention will now be described in greater detail. The toxicant utilized in the composition of the present invention is 2-isopropoxyphenyl N-methylcarbamate also known as propoxur and sold under the trade name Baygon. This material is a very active insecticide which kills primarily by residual activity. However, Baygon also has superior toxicity should it be ingested by an insect. Baygon also has disadvantages in that it has some repellency to some insects but insects can be lured to a surface treated with Baygon using an appropriate bait material.

The compositions of the present invention must also include an effective amount of a sugar bait. Suitable sugars include the monosaccharides, disaccharides and polysaccharides such as corn syrup, which is a mixture of D-glucose, maltose and maltodextrins, fructose, glucose, maltose, sucrose, lactose, and molasses, as well as mixtures thereof. The preferred sugar is corn syrup. It has generally been found that the substrate should be impregnated with sufficient bait material so that insects will be attracted to the bait.

The baits of the present invention also utilize an absorbant substrate. Typically, any absorbant

cellulosic substrate can be utilized so long as the substrate itself is not repellent to insects or roaches. Suitable substrates include fiber board, filter paper, cloth fiber. Although size is not important for conveniences found, it is preferred the substrates utilized have a surface of less than 70 sq. centimeters.

In order to carry the toxicant and bait to the substrate, these materials are conveniently mixed with an organic solvent. Typically this solvent can be water or mixtures of water and other non-repellent organic solvents such as acetone. Other organic solvents, however, can be used so long as there is no residue contained within the product which is repellent to insects.

The absorbant substrate is impregnated with from 0.5 to 10% by weight and preferably from 1 to 5% by weight of the above mixture of propoxur, sugar and solvent. This mixture includes from 0.1 to 5 parts and preferably from 0.25 to 3 parts by weight 2-isopropoxyphenyl N-methylcarbamate. At amounts below 0.1 parts activity is diminished while above 5 parts repellency becomes a factor.

The mixture also includes from 20 to 70 parts and preferably 30 to 60 parts by weight of sugar attractant. At amounts less than 20 parts there is insufficient attractant material to lure insects. At amounts of over 70 parts stability and manufacturing ease are comprised.

To carry the toxicant and bait to the substrate, a volatile solvent is used. The preferred solvent is a mixture of water and acetone although any non-repellent solvent can be used. The solvent should be present in an amount of from 10 to 80 parts

and preferably 25 to 65% by weight.

The composition to the present invention will now be illustrated by way of the following examples which are for the purpose of illustration only and are in no way to be considered as limiting.

Examples 1-5

The five formulations set forth in Table 1 were prepared by mixing the ingredients together.

Table 1

		<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>
10	Baygon (94%)	0.53	1.06	2.12	4.26	8.51
	Maltose	50.00	50.00	50.00	50.00	50.00
	Deion. Water	44.47	43.94	42.88	40.74	37.49
	Acetone	5.00	5.00	5.00	5.00	5.00
15		100.00	100.00	100.00	100.00	100.00

Some 20 grams of each of the above concentrates was then impregnated into a 7 centimeter by 10 centimeter piece of paper board substrate.

The baits were then tested by exposing 25 German cockroaches each to a specific bait. The average percentage of kill versus for 4 replicates time is shown in Table 2.

TABLE 2

% Kill (Hours)

		<u>1</u>	<u>2</u>	<u>3</u>
25	A	94	98	100
	B	94	100	--
	C	88	100	--
	D	94	100	--
30	E	90	100	--

Example 6

The procedure of Example 1 was repeated with the exception that the baits were tested against American cockroaches with 10 cockroaches being used per replicate. Four replicates were conducted. Results in 5 average % kill are shown in Table 3.

TABLE 3

		<u>% Kill (Hours)</u>					
American		<u>2</u>	<u>4</u>	<u>6</u>	<u>8</u>	<u>24</u>	<u>48</u>
10	A	10	15	50	50	75	100
	B	0	10	45	100	--	--
	C	0	15	50	50	100	--
	D	0	10	95	100	--	--
	E	0	0	45	70	100	--



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CLAIMS:-

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1. An improved cockroach bait comprising a cellulosic substrate impregnated with 0.5 to 10.0 percent by weight of a composition comprising of from 0.1 to 5% by weight of 2-isopropoxyphenyl N-methylcarbamate, from 20 to 70% by weight of a sugar attractant and from 10 to 80% by weight of a carrier for the toxicant and bait which is a solvent from the group consisting of water and water mixed with one or more non-repellent organic solvents which is substantially evaporated from the final composition.

2. The bait of Claim 1, wherein the sugar is selected from the group consisting of corn syrup, fructose, glucose, lactose, maltose, sucrose, molasses and mixtures thereof.

3. The bait of Claim 1, wherein the sugar is corn syrup.

4. The bait of Claim 1, 2 or 3, wherein substrate is impregnated with 1 to 5% by weight of said composition,

5. The bait of any one of Claims 1 to 4, wherein the composition comprises from 0.25 to 3% by weight 2-isopropoxy phenyl N-methylcarbamate, from 30 to 60% by weight sugar and 25 to 65% by weight solvent.

6. The bait of any of Claims 1 to 5, wherein the solvent is a mixture of water and acetone.

7. An improved cockroach bait composition according to Claim 1, and substantially as herein described with reference to any one of Examples 1 to 6.
