In an embodiment, the composition comprising denatonium compound is effective for all the insects and animals.

In an embodiment, the present composition comprises

1. at least one denatonium compound and
2. a carrier

In an embodiment, said carrier is used in an amount in the range of 1 % to 25% w/w.
In an embodiment, the carrier used can be any carrier conventionally used in insect repellent formulations.

In an embodiment, the carrier used in the composition is a surfactant.

In an embodiment present invention provide an insect repellent composition comprising

1. at least one denatonium compound
2. at least one surfactant
3. optionally essential oil

In an embodiment present invention provide an insect repellent composition comprising

1. denatonium benzoate;
2. at least one surfactant and
3. optionally essential oil

In an embodiment the active insect repellent is denatonium compound used in an amount in the range of 0.01-50 % w/w.

In an embodiment the active insect repellent is denatonium compound used in an amount in the range of 1-50 % w/w.

In an embodiment the active insect repellent is denatonium compound used in an amount in the range of 1-25 % w/w.

In an embodiment the carrier is a surfactant and used in an amount in the range of 1-25% w/w.

In an embodiment the essential oil is used in an amount

In an embodiment, the composition further comprises at least one surfactant, solvent, water, stabilizer, plant extract or essential oil.

The surfactant used in the composition is selected from the group comprising PVA, V pyrrolidone or PV pyridine, oxirane, methyl-, polymer with oxirane, mono(3,5,5-trimethylhexyl) ether + Styrene acrylic polymer in combination.

In some embodiments, the composition comprising denatonium compound as insect repellent further comprising at least one carrier selected from sodium lauryl sulphate, polyvinyl acetate, polyvinyl pyridine, polyvinyl pyrrolidone, styrene acrylic polymer, alkoxylates (Teg wet 500), kaolin clay, oils such as clove oil, cinnamon oil, castor oil, peppermint oil, garlic extract, walnut shells and water.

In an embodiment the composition may further comprising a fragrance.

The composition may comprise at least one fragrance selected from neroli oil, anethole, rose oil, violet extract, mandarin oil, methylionone, sandal wood, musk and patchouli.

In an embodiment, said carrier comprises at least one selected from sodium lauryl sulphate, polyvinyl acetate, polyvinyl pyridine, polyvinyl pyrrolidone, styrene acrylic polymer, Teg wet 500, kaolin clay, essential oils, plant extracts or water.

In an embodiment, the surfactant is selected from the below groups.

1) Anionic: sulfate, sulfonate, and phosphate, carboxylate derivatives: Anionic surfactants contain anionic functional groups at their head, such as sulfate, sulfonate, phosphate, and carboxylates. Prominent alkyl sulfates include ammonium lauryl sulfate, sodium lauryl sulfate (sodium dodecyl sulfate, SLS, or SDS), and the related alkyl-ether sulfates sodium laurethsulfate (sodium lauryl ether sulfate or SLES), and sodium myrethsulfate. Carboxylates are the most common surfactants and comprise the carboxylate salts (soaps), such as sodium stearate. More specialized species include sodium lauroylsarcosinate and carboxylate-based fluorosurfactants such as perfluorononanoate, perfluorooctanoate (PFOA or PFO).

2) Cationic: pH-dependent primary, secondary, or tertiary amines; primary and secondary amines become positively charged at pH < 10: octenidine dihydrochloride.

EXAMPLES

Example 1

TABLE 1 FORMULATION FOR NEALGAI AND WILD BOARS						
LIQUID FORMULATIONS						
INGREDIENTS OF THE COMPOSITION	**FORMULATION 1**	**FORMULATION 2**	**FORMULATION 3**	**FORMULATION 4**	**FORMULATION 5**	**FORMULATION 6**
	Weight % of the components					
Denatonium Benzoate	0.05	5	7.5	15	20	30
Sodium Lauryl Sulphate	0.002	0.006	0.9	1.2	2.5	3
Xanthan Gum	0.1	0.1	0.1		-	2.5
Polyvinyl Acetate	20		-	0.05	5	5
Polyvinyl pyridine		0.05		10		0.5
Polyvinyl Pyrrolidone			6		8	7
Clove oil	0.01				0.1	
Peppermint Oil		0.005				0.01
Garlic extract				0.5		
Water	q.s.	q.s.	q.s.	q.s.	q.s.	q.s.
OBSERVATION	Dispersibility is satisfactory. Thick film formation.	Dispersibility is satisfactory. Film is not uniform.	Dispersibility is satisfactory. Uneven film formation.	Excellent dispersibility and uniform thin film formation	High viscosity solution. Excellent dispersibility and uniform thin film formation	Thick solution. Excellent dispersibility and uniform thin film formation

TABLE 2

GRANULATION FORMULATIONS FOR (e.g., Mice, Rabbits, Squirrels, And Groundhogs)

INGREDIENTS OF THE COMPOSITION	FORMULATION 1	FORMULATION 2	FORMULATION 3	FORMULATION 4	FORMULATION 5	FORMULATION 6
	Weight % of the components					
Denatonium Benzoate	0.05	5	7.5	15	20	30
Xanthan Gum	0.1	0.1	0.1		-	2.5
Polyvinyl Acetate		10		7.5	1	0.5
Polyvinyl Pyrrolidone	7.5		-	5		2.5
Polyvinyl pyridine			8		5	0.2
Kaolin Clay	0.01	0.05	1.1	-	0.05	0.06
Cinnamon oil	5-10	0.1-15				
Peppermint Oil			10.8	0.04-15		
Garlic extract					0.05-2	1.1
Walnut shells		0.01-5		0.01-5		0.01-5
OBSERVATION	Hard granules. Doesn't disintegrate easily	Hard granules with lot of dusting during friability test	Soft granules. On friability burst open.	Appropriate hardness with less dusting. Satisfactory dispersibility in water.	Appropriate hardness with less dusting. Satisfactory dispersibility in water.	Appropriate hardness with less dusting. Satisfactory dispersibility in water.

TABLE 3 SPRAY FORMULATION FOR PIG AND NILGAI						
INGREDIENTS OF THE COMPOSITION	**FORMULATION 1**	**FORMULATION 2**	**FORMULATION 3**	**FORMULATION 4**	**FORMULATION 5**	**FORMULATION 6**
	Weight % of the components					
Denatonium Benzoate	0.05	5	7.5	15	20	30
Polyvinyl Acetate		10		4	4	2.5
Polyvinyl Pyrrolidone	10			3.5		2.5
Polyvinyl pyridine			5.5		2.5	2.5
Cinnamon oil	0.1-5	-	0.	0.02	0.5	-
Peppermint Oil			0.1-2			
Garlic extract				0.04	0.05	1.1
Water	q.s.	q.s.	q.s.	q.s.	q.s.	q.s.
OBSERVATION	Dispersibility is satisfactory. Thick film formation. Film comes out easily.	Dispersibility is satisfactory. Film is not uniform. Film cracks.	Dispersibility is satisfactory. Uneven film formation.	Excellent dispersibility and uniform thin film formation	Excellent dispersibility and uniform thin film formation	Excellent dispersibility and uniform thin film formation

- **WHEN FORMULATION IS PREPARED USING DENATONIUM BENZOATE WITH ODOURIFEROUS COMPOUND, THE REPELLENCE EFFECT OF DENATONIUM BENZOATE IS ENHANCED.**

TRIAL 4 LIQUID FORMULTION FOR RATS AND LIZARD									
INGREDIENTS OF THE COMPOSITION	**TRIAL 1**	**TRIAL 2**	**TRIAL 3**	**TRIAL 4**	**TRIAL 5**	**TRIAL 6**	**TRIAL 7**	**TRIAL 8**	**TRIAL 9**
Chemical	**0.5 % DB Quantity (g)**	**1 % DB Quantity (g)**	**1.5 % DB Quantity (g)**	**0.5 %**	**1 %**	**1.5 %**	**0.5 %**	**1 %**	**1.5 %**
Denatonium Benzoate	0.5	1	1.5	0.5	1	1.5	0.5	1	1.5
Non-ionic surfactant (1-10)	10	0.05	0.1	0.5	2.5	3	4	5	2.5
Acrylic Polymer (1-10)	0.2	4	1.5	6	2.5	1.5	4	2.5	1.5
Odouriferous Compound	NA	NA	NA	**Citronella 0.5**	**Clove**	**Cinnamon**	**Ginger**	**Tulsi**	**Peppermint**
Water	q.s.	q.s.	q.s.	q.s.	q.s.	q.s.	q.s.	q.s.	q.s.
OBSERVATIONS	Milky solution. Stable with no layer separation .	Milky solution. Stable and no layer separation	Milky solution. Viscosity is slightly higher. Layer separation after 5-6 hrs which is easily dispersible.	Clear solution.	Clear solution.	Clear solution.	Clear solution.	Clear solution.	Clear solution.
REPELLANCE	GOOD	EXCELLENT	EXCELLENT	Not as effective as DB	Not as effective as DB	Not as effective as DB	Not as effective as DB	Not as effective as DB	Not as effective as DB

TRIAL 5
LIQUID FORMULTION FOR RATS AND LIZARD

INGREDIENTS OF THE COMPOSITION	**TRIAL 1**	**TRIAL 2**	**TRIAL 3**	**TRIAL 4**	**TRIAL 5**	**TRIAL 6**	**TRIAL 7**	**TRIAL 8**	**TRIAL 9**
	0.5 % DB Quantity (g)	**1 % DB Quantity (g)**	**1.5 % DB Quantity (g)**	**0.5 % DB Quantity (g)**	**1 % DB Quantity (g)**	**1.5 % DB Quantity (g)**	**0.5 % DB Quantity (g)**	**1 % DB Quantity (g)**	**1.5 % DB Quantity (g)**
Denatonium Benzoate	0.5	1	1.5	0.5	1	1.5	NA	NA	NA
Polyvinyl Acetate		9		8	6.5	3.5	10	7.5	5
Polyvinyl Pyrrolidone (1-20)	12	4	2.5	1	1	1			
Polyvinyl Pyridine			0.01		2.0	2.5		5.5	1
Odouriferous Compound	NA	NA	NA				**Ginger**	**Tulsi**	**Peppermint**
Water	q.s.	q.s.	q.s.	q.s.	q.s.	q.s.	q.s.	q.s.	q.s.
OBSERVATION	Clear solution. Stable and no layer separation . Film formation is not uniform.	Clear solution. Stable. No layer separation. Very hard film	Milky solution. Stable. Uniform film which breaks	Clear solution. with no layer separation. Uniform and stable film.	Clear solution. Stable and no layer separation. Uniform and stable film.	Milky solution. Viscosity is slightly higher. Layer separation after 5-6 hrs which is easily dispersible. Forms stable film	Clear solution	Clear solution	Clear solution
REPELLANCE	GOOD	EXCELLENT	EXCELLENT	GOOD	EXCELLENT	EXCELLENT			

TRIAL 6 OIL BASED FORMULATION FOR ANIMAL REPELLENT						
	FORMULATION 1	**FORMULATION 2**	**FORMULATION 3**	**FORMULATION 4**	**FORMULATION 5**	**FORMULATION 6**
INGREDIENTS OF THE COMPOSITION	Weight % of the components					
Denatonium Benzoate	0.5	1	1.5	0.5	1	1.5
Polyvinyl Acetate		15	-	5	4	4
Polyvinyl Pyrrolidone	5.5			2.5		2
Polyvinyl pyridine			6		5.5	1
Cinnamon oil	2.5	-	0.5	2.5	1	-
Peppermint Oil			2.5			
Garlic extract				2	1	1.1
Oil (Castor Oil)	q.s.	q.s.	q.s.	q.s.	q.s.	q.s.
OBSERVATIONS	Upto 1%, it's a clear solution. Beyond 1 % it's a stable suspension. Easily dispersible. Film formation is not uniform.	Upto 1%, it's a clear solution. Beyond 1 % it's a stable suspension. Easily dispersible. Hard film.	Upto 1%, it's a clear solution. Beyond 1 % it's a stable suspension. Easily dispersible. Film cracks.	Upto 1%, it's a clear solution. Beyond 1 % it's a stable suspension. Easily dispersible. Even film formation	Upto 1%, it's a clear solution. Beyond 1 % it's a stable suspension. Easily dispersible. Even film formation	Upto 1%, it's a clear solution. Beyond 1 % it's a stable suspension. Easily dispersible. Even film formation

CLAIMS

1. An insect and animal repellent composition comprising denatonium benzoate in an amount in the range of 1 to 50% w/w and a carrier in an amount in the range of 1 % to 25% w/w or quantity sufficient (q.s.) w/w, wherein said carrier comprises at least one selected from sodium lauryl sulphate, polyvinyl acetate, polyvinyl pyridine, polyvinyl pyrrolidone, styrene acrylic polymer, alkoxylates, kaolin clay, essential oils, plant extracts or water.

2. A liquid formulation comprising an insect and animal repellent composition comprising denatonium benzoate in an amount in the range of 1 to 50% w/w and at least one carrier in an amount in the range of 1 % to 25% w/w or quantity sufficient (q.s.) w/w, wherein said carrier is selected from sodium lauryl sulphate, polyvinyl acetate, polyvinyl pyridine, polyvinyl pyrrolidone, styrene acrylic polymer, alkoxylates, kaolin clay, essential oils, plant extracts or water.

3. A solid composition comprising an insect and animal repellent composition comprising denatonium benzoate in an amount in the range of 1 to 50% w/w and at least one carrier selected from sodium lauryl sulphate, polyvinyl acetate, polyvinyl pyridine, polyvinyl pyrrolidone, styrene acrylic polymer, alkoxylates, kaolin clay, essential oils, or plant extracts.

4. A method for repelling insects comprising applying an insect and animal repellent composition to the area to be made repellent, said composition comprising denatonium benzoate in an amount in the range of 1 to 50% w/w as insect repellent and at least one carrier in an amount in the range of 1 % to 25% w/w or quantity sufficient (q.s.) w/w selected from sodium lauryl sulphate, polyvinyl acetate, polyvinyl pyridine, polyvinyl pyrrolidone, styrene acrylic polymer, alkoxylates, kaolin clay, essential oils, plant extracts or water.