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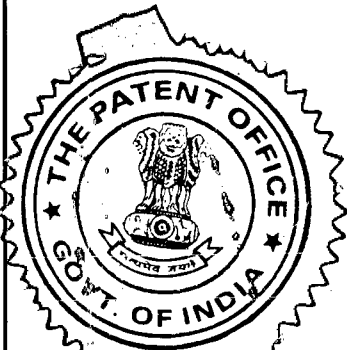
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FORM 2

THE PATENTS ACT, 1970

(39 of 1970)

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The Patents Rules, 2003

PROVISIONAL SPECIFICATION

(See section 10; rule 13)

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1. Title of the invention - **AQUEOUS HERBICIDAL
INTERMIXTURES**

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3. PREAMBLE TO THE DESCRIPTION

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The following specification describes the invention

Technical field of the invention

The invention relates to herbicidal intermixtures. More particularly, the invention relates to essentially aqueous homogeneous herbicide compositions comprising electrolytic
5 herbicides and a multipart amine component.

Background of the invention

Controlling unwanted plants is of high importance in agriculture. Over the years, various strategies have been developed for effective control of these unwanted plants. Depending upon the region it is necessary to find or develop appropriate techniques for
10 desired weed control. A large part of the surface of the world is arid, characterized as too dry for conventional rain fed agriculture and hence it demands for precise or specific weed control techniques.

"Arid" implies prolonged dryness, and is used with respect to the climate and the land below it. In such regions the ability to produce agricultural crops is restricted. Usually on
15 arid lands the potential evaporation of water from the land exceeds the rainfall. The land may be characterized according to the degree of aridity as dry forest, chaparral or brushland, grassland or savannah, or desert. "Arid" does not adequately characterize the soils, however, for they may vary in many ways. Often they are alkaline or saline.

An arid ecosystem differs in many respects from one of tropical or temperate zones.
20 Unlike temperate zones, an arid zone is characterized as an area of low precipitation, high temperature, and high rate of evaporation. Frequency of rainfall does not describe accurately the type of the arid zone nor does the amount of precipitation govern the type of vegetation.

Among the various agronomic practices that could bring about immediate positive
25 results in dryland and arid areas, optimum and effective weed control is the first and foremost management practice. However many weeds growing naturally in the arid region have evolved a more complicate overall drought adaptation strategy which

usually involves several mechanisms of drought escape, tolerance and avoidance. The leaf shedding option, the tight stomatal control and the development of a prolific root system are all specific characteristics developed by the vegetation destined to grow in arid regions. The plants adopt to osmoregulation and increase in elasticity of the cell and a decrease in cell size. Due to such natural adaption of the plants/weeds to the specific conditions, they are tougher than those growing under normal conditions and is difficult to control. Further such weeds have thick and waxy cuticle layers defending them from the penetration of any use of foliar herbicides. It has been observed that the commonly used non-selective herbicide such as glufosinate based formulations were not providing an effective weed control in arid regions.

Glufosinate is a non-selective foliage application type herbicide which kills or controls many species of weeds. In the Pesticide Manual 15th Edition, glufosinate has been described as being widely used in burn-down segments, and for control of a wide range of broad-leaved weeds and grasses and sedges in cereals, cotton, corn and soy, fruit orchards, vineyards, rubber and oil palm plantations, ornamental trees and bushes, non-crop land, and pre-emergence in vegetables.

Glufosinate being a contact herbicide is known to be used with various adjuvants to improve the efficacy or to induce certain specific properties as required. US6642177 discloses that to be effective, glufosinate must be formulated with a high concentration of surfactants to get the required bio efficacy.

DE 3931051 discloses salts of herbicidal acids with long-chain nitrogen bases such as fatty amines.

It has been observed by the inventors of the present invention that existing formulations of non-selective herbicide such as glufosinate is not effective as desired particularly in arid environments. In view of such observation, there is a necessity for developing more

effective formulations which are physically stable as well as bio-efficacious irrespective of the environment such as arid, or non-arid regions.

With the forgoing in consideration, the primary object of the present invention is the designing and preparation of a novel composition of glufosinate which is highly
5 efficacious particularly in arid region where the weeds are having thick and waxy leaves and is difficult to penetrate with usual foliar herbicidal formulations.

Objects of the invention

- It is an object of the present invention to provide an aqueous herbicidal formulation comprising glufosinate and a multi-part amine component.
- 10 It is another object of the present invention to provide an aqueous herbicidal formulation comprising glufosinate and a multi-part amine component for effective weed control in arid regions.
- It is another object of the present invention to provide a process or preparing an aqueous herbicidal formulation comprising glufosinate and a multi-part amine component.
- 15 Yet another object of the present invention is to provide a method for controlling unwanted plants in arid regions.

Summary of the invention

The present invention provides an herbicidal intermixture comprising:

- 20 a) An electrolytic herbicide; and
b) a multipart amine component.

The present invention provides an herbicidal intermixture comprising:

- a) An electrolytic herbicide;
b) a multipart amine component; and
c) water.

The present invention further provides an herbicidal intermixture comprising:

- a) a phosphinic acid herbicide, its salts, its isomers, mixture of isomers, derivatives, or lower alkyl esters thereof;
- b) a multipart amine component;
- 5 c) optionally other agrochemical excipients; and
- d) water.

In another aspect the present invention provides an aqueous herbicidal composition comprising:

- (a) a phosphinic acid herbicide, its salts, its isomers, mixture of isomers, derivatives, or lower alkyl esters thereof;
- 10 (b) a multipart amine component;
- (c) one or more organic solvents;
- (d) optionally one or more adjuvants; and
- (e) water,

- 15 wherein said multipart amine component comprises at least one tertiary amine having an alkyl group of at least 8 carbon atoms.

In another aspect of the present invention, there is provided a process for preparing herbicidal intermixture according to the present invention.

- Another aspect of the present invention is to provide a method controlling unwanted plants in crop and non-crop areas, said method comprising applying to the plants, unwanted plants or to their locus, a herbicidally effective amount of herbicidal intermixtures according to the present invention.
- 20

- The present invention further provides a method of controlling unwanted plants in crop and non-crop areas in arid region, said method comprising applying to the plants, unwanted plants or to their locus in arid region, an herbicidally effective amount of herbicidal intermixtures according to the present invention.
- 25

Detailed Description

It has been found out that highly efficacious herbicidal compositions comprising glufosinate can be developed by intermixing glufosinate with multipart amine components. In order to overcome the inefficiencies of the existing formulations particularly in arid regions, inventors of the present invention surprisingly found out that herbicidal intermixture of glufosinate with multipart amine components can be effectively used.

Thus according to an aspect of the present invention, there is provided an herbicidal intermixture comprising:

- a) An electrolytic herbicide; and
- b) a multipart amine component.

In an embodiment, the intermixture comprises water.

The present invention thus provides an herbicidal intermixture comprising:

- a) An electrolytic herbicide;
- b) a multipart amine component; and
- c) water.

In another embodiment, the intermixture of the present invention possesses superior herbicidal activity.

In an embodiment, the term intermixture includes an admixture.

- In certain embodiments, the term intermixture includes the mixtures resulting from any one of the processes selected from reaction, solubilisation, neutralization or partial neutralization occurring between the components of the intermixture.

In certain other embodiments, the term intermixture includes a composition or formulation according to the present invention.

Accordingly, in certain other embodiments, there is provided an herbicidal mixture comprising:

- a) An electrolytic herbicide; and
- b) a multipart amine component.

5 In an embodiment, the herbicidal mixture comprises water.

Accordingly, in certain other embodiments, there is provided an herbicidal mixture comprising:

- a) An electrolytic herbicide;
- b) a multipart amine component; and
- 10 c) water.

In another embodiment, the herbicidal mixture of the present invention possesses superior herbicidal activity.

In an embodiment of the present invention, the electrolytic herbicide is selected from phosphinic acid herbicides.

15 In some embodiments the phosphinic acid herbicide is selected from the group comprising glufosinate and glyphosate.

In certain embodiments glufosinate refers to its derivatives selected from lower alkyl esters thereof or salts thereof with acids or bases such as its hydrochloride, monosodium salt, disodium salt, monopotassium salt, dipotassium salt, monocalcium salt, ammonium
20 salt, $\text{-NH}_3(\text{CH}_3)^+$ salt, $\text{-NH}_2(\text{CH}_3)_2^+$ salt, $\text{-NH}(\text{CH}_3)_3^+$ salt, $\text{-NH}(\text{CH}_3)_2(\text{C}_2\text{H}_4\text{OH})^+$, $\text{-NH}_2(\text{CH}_3)(\text{C}_2\text{H}_4\text{OH})^+$, or its methyl ester, ethyl ester, propyl ester or butyl ester.

In certain other embodiments, glufosinate refers to isomers or mixture of isomers.

25 In a preferred embodiment, the isomer is glufosinate-P.

In some embodiments, glyphosate refers to glyphosate-mono ammonium, glyphosate diammonium, glyphosate-isopropylammonium, glyphosate-potassium or glyphosate isopropyl amine salt.

5 Thus according to another aspect of the present invention, there is provided an herbicidal intermixture comprising:

- a) a phosphinic acid herbicide, its salts, its isomers, mixture of isomers, derivatives, or their lower alkyl esters thereof;
- b) a multipart amine component;
- 10 c) optionally other agrochemical excipients; and
- d) water.

In an embodiment, the intermixture of the invention possesses superior herbicidal activity.

15 In an embodiment the multipart amine component comprises one or more tertiary amines having alkyl groups of 8 to 20 carbon atoms.

In another embodiment the multipart amine component comprises one or more tertiary dimethyl alkylamines wherein the alkyl groups have 8 to 20 carbon atoms.

In some embodiments, the multipart amine component comprises one or more tertiary
20 dimethyl alkylamines wherein the alkyl groups have 10 to 20 carbon atoms.

In an embodiment, the multipart amine component according to the present invention comprises at least two tertiary amines having alkyl groups of 8 to 20 carbon atoms.

In another embodiment, the multipart amine component according to the present invention comprises at least three tertiary amines having alkyl groups of 8 to 20 carbon
25 atoms.

In an embodiment, the multipart amine component according to the present invention comprises at least four tertiary amines having alkyl groups of 8 to 20 carbon atoms.

In an embodiment, the multipart amine component according to the present invention comprises at least two tertiary dimethyl alkylamines having alkyl groups of 8 to 20 carbon atoms.

In another embodiment, the multipart amine component according to the present invention comprises at least three tertiary dimethyl alkylamines having alkyl groups of 8 to 20 carbon atoms.

In another embodiment, the multipart amine component according to the present invention comprises at least four tertiary dimethyl alkylamines having alkyl groups of 8 to 20 carbon atoms.

In another embodiment, the multipart amine component according to the present invention comprises at least one tertiary dimethyl alkylamine having alkyl groups of 10 to 18 carbon atoms.

In an embodiment, the multipart amine component according to the present invention comprises at least two tertiary dimethyl alkylamines having alkyl groups of 8 to 20 carbon atoms wherein said tertiary dimethyl alkylamines are present in a ratio of 1:99 to 99:1.

In another embodiment, the multipart amine component according to the present invention comprises at least two tertiary dimethyl alkylamines having alkyl groups of 8 to 20 carbon atoms wherein at least one dimethyl alkylamine is present at least in an amount about 50% by weight of the multipart amine component.

In an embodiment, the term intermixture or admixture according to the present invention includes a composition or a formulation.

In another embodiment, the compositions according to the present invention further comprises organic solvents.

Thus accordingly, the present invention provides an aqueous herbicidal composition comprising:

- a) a phosphinic acid herbicide, its salts, its isomers, mixture of isomers, derivatives, or their lower alkyl esters thereof;
- 5 b) a multipart amine component;
- c) one or more organic solvents;
- d) optionally one or agrochemical excipients; and
- e) water;

wherein said multipart amine component comprises at least one tertiary amine
10 having an alkyl group of at least 8 carbon atoms.

In an embodiment, the solvents may be selected from but are not limited to:

a water miscible polar/non-polar or a water immiscible polar/non-polar solvent, for example, alkyl esters of phthalic acid and trimellitic acid; aromatic hydrocarbons such as xylene, solvesso-100, solvesso-150, solvesso-200, alkyl benzenes; methylnaphthalene;
15 mixtures of aromatics aliphatic or cycloaliphatic hydrocarbon such as hexane and heptanes; phthalates; ketones such as cyclohexanone, 2-octanone or acetophenone, methyl isobutyl ketone - saturated or unsaturated cyclic ketones such as isophorone, chlorinated hydrocarbons; vegetable oils and modified vegetable oils; glycols and their derivatives, polyglycols; aliphatic alcohols, alkoxy aliphatic alcohols or mixtures of such
20 two or more solvents. Other solvents can be alkylene carbonates (like propylene carbonate), alkyl amides, and esters such as alkyl esters of monocarboxylic acids and dicarboxylic acid, ester-amides, cyclic ethers such furan and its derivatives or mixtures thereof.

In certain embodiments of the present invention, the herbicidal intermixtures further
25 comprises other agrochemical excipients.

In some embodiments, other agronomically suitable excipients are selected from but are not limited to surfactants, solvent, fertilizer, pH modifiers, crystallization inhibitors,

viscosity modifiers, suspending agents, spray droplet modifiers, pigments, antioxidants, foaming agents, light-blocking agents, compatibilizing agents, antifoam agents, sequestering agents, neutralizing agents, corrosion inhibitors, dyes, odorants, spreading agents, penetration aids, micronutrients, emollients, lubricants, sticking agents, dispersing agents, thickening agents, freezing point depressants, antimicrobial agents, and the like.

In an embodiment, the herbicidal intermixture of the present invention may be combined with at least another active ingredient selected from the group comprising herbicides, insecticides, fungicides, biological agents, plant growth activators, fertilizers or combinations thereof.

Thus, in an embodiment, the herbicidal intermixture according to the present invention may be combined with an herbicide. Exemplary herbicides that may be combined with the herbicidal intermixture of the present invention may include, but are not limited to, herbicides selected from classes such as ACCase inhibitors, ALS inhibitors, EPSP synthase inhibitors, synthetic auxins, auxin transport inhibitors, HPPD inhibitors, lipid synthesis inhibitors, long chain fatty acid inhibitors, as well as herbicides with unknown modes of action.

According to another aspect, the present invention further provides a process for preparing herbicidal intermixtures according to the invention.

In an embodiment, the present invention provides a process for preparing herbicidal intermixture according to the invention, said process comprising the steps:

- a) mixing a multipart amine component with water;
- b) adding an electrolytic herbicide until a clear solution is obtained.

In some embodiments, the present invention provides a process for preparing herbicidal compositions according to the invention, said process comprising:

- a) mixing a multipart amine component with water;
- b) adding one or more organic solvents;

- c) optionally adding other agrochemical excipients; and
- d) intermixing an electrolytic herbicide with the mixture obtained in step c) until a clear solution is obtained.

In certain embodiments, the present invention provides a process for preparing
5 herbicidal compositions according to the invention, said process comprising the steps:

- a) mixing a multipart amine component with water;
- b) adding one or more organic solvents;
- c) optionally adding other agrochemical excipients; and
- d) intermixing a phosphinic acid herbicide, its salts, its isomers, mixture of isomers,
10 derivatives, or their lower alkyl esters thereof with the mixture obtained in step c)
until a clear solution is obtained.

In certain embodiments, the phosphinic acid herbicide is selected from glufosinate, its salts, its isomers, mixture of isomers, derivatives, or their lower alkyl esters thereof.

Thus in certain embodiments, the present invention provides a process for preparing
15 herbicidal compositions according to the invention, said process comprising the steps:

- a) mixing a multipart amine component with water;
- b) adding one or more organic solvents;
- c) optionally adding other agrochemical excipients; and
- d) intermixing glufosinate, its salts, its isomers, mixture of isomers, derivatives, or
20 their lower alkyl esters thereof with the mixture obtained in step c) until a clear
solution is obtained.

In certain other embodiments, the present invention provides a process for preparing
herbicidal compositions according to the invention, said process comprising the steps:

- a) mixing a multipart amine component with water;
- 25 b) adding one or more organic solvents;

- c) adding other agrochemical excipients selected from the group comprising nonionic surfactants, anionic surfactants, wetting agents and dispersing agents; and
- d) intermixing glufosinate, its salts, its isomers, mixture of isomers, derivatives, or their lower alkyl esters thereof with the mixture obtained in step c) until a clear solution is obtained.

In certain embodiments the multipart amine component comprises one or more tertiary amines having alkyl groups of 8 to 20 carbon atoms.

In certain other embodiments the multipart amine component comprises one or more tertiary dimethyl alkylamines wherein the alkyl groups have 8 to 20 carbon atoms.

In some embodiments, the multipart amine component comprises one or more tertiary dimethyl alkylamines wherein the alkyl groups have 10 to 18 carbon atoms.

The present invention further provides a method of controlling unwanted plants in crop and non-crop areas, said method comprising applying to the plants, unwanted plants or to their locus a herbicidally effective amount of compositions according to the present invention.

Accordingly, the present invention provides a method of controlling unwanted plants in arid regions said method comprising applying to the to the plants, unwanted plants or to their locus a herbicidally effective amount of compositions according to the present invention.

In an embodiment, the present invention provides a method of controlling unwanted plants in both crop and non-crop areas in arid region said method comprising applying to the unwanted plants or to their locus a herbicidally effective amount of compositions according to the present invention.

Thus in an embodiment there is provided a weed control method in arid region, said method comprising applying to the weeds or to their locus a herbicidally effective amount of herbicidal intermixture comprising:

- a) An electrolytic herbicide;
- 5 b) a multipart amine component; and
- c) water.

In another embodiment, there is provided a weed control method in arid region, said method comprising applying to the weeds or to their locus a herbicidally effective amount of herbicidal intermixture comprising:

- 10 a) a phosphinic acid herbicide, its salts, its isomers, mixture of isomers, derivatives, or their lower alkyl esters thereof;
- b) a multipart amine component;
- c) optionally other agrochemical excipients; and
- d) water.

15 **Examples:**

Example 1: A herbicidal intermixture according to the present invention comprising glufosinate ammonium is prepared as follows:

Ingredient	Quantity(% w/w)
glufosinate ammonium	25.2
multipart amine (C ₁₂ -C ₁₄)	20.0
wetting agent	15.0
organic solvent	10.0
ammonium sulfate	5.0
water	q.s.

The composition is prepared by a process as follows:

Required quantity of multipart amine component, wetting agent, organic solvent, ammonium sulfate and water were combined and mixed until a homogeneous mixture is obtained. Required quantity of glufosinate ammonium was added in portions and mixed vigorously until a clear solution is obtained.

- 5 Example 2: A herbicidal intermixture according to the present invention comprising glufosinate acid is prepared as follows:

Ingredient	Quantity(% w/w)
glufosinate acid	17.0
multipart amine (C ₁₀ -C ₁₄)	20.0
wetting agent	15.0
organic solvent	10.0
ammonium sulfate	5.0
water	q.s.

The composition was prepared by following process given for example 1.

- 10 Example 3: A herbicidal intermixture according to the present invention comprising glufosinate dipotassium salt is prepared as follows:

Ingredient	Quantity (% w/w)
glufosinate dipotassium salt	30.0
multipart amine (C ₁₀ -C ₁₈)	20.0
wetting agent	15.0
organic solvent	10.0
ammonium sulfate	5.0
water	q.s.

Example 4: A herbicidal intermixture according to the present invention comprising glufosinate acid is prepared as follows:

Ingredient	Quantity (% w/w)
glufosinate acid	17.0
multipart amine(C ₁₀ -C ₁₈)	20.0
alkylglucamide	25.0
organic solvent	10.0
ammonium sulfate	5.0
water	q.s.

- 5 Example 5: A herbicidal intermixture according to the present invention comprising glufosinate ammonium is prepared as follows

Ingredient	Quantity (% w/w)
glufosinate ammonium	15.0
multipart amine(C ₁₂ -C ₁₆)	20.0
Wetting agent	17.0
Alkyl polyglycoside	10.0
organic solvent	10.0
ammonium sulfate	5.0
water	q.s.

- 10 Example 6: A herbicidal intermixture according to the present invention comprising glufosinate acid is prepared as follows:

Ingredient	Quantity (% w/w)
glufosinate acid	17.0

multipart amine(C ₁₂ -C ₁₆)	20.0
Sodium lauryl ether sulfate	16.5
alkylglucamide	8.5
organic solvent	10.0
ammonium sulfate	5.0
water	q.s.

Example 7: A herbicidal intermixture according to the present invention comprising glufosinate ammonium and glyphosate isopropyl amine is prepared as follows:

Ingredient	Quantity (% w/w)
glufosinate ammonium	15.00
glyphosate IPA	30.00
multipart amine(C ₁₂ -C ₁₄)	18.0
wetting agent	15.0
organic solvent	10.0
ammonium sulfate	5.0
water	q.s.

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Example 8: A herbicidal intermixture according to the present invention comprising glufosinate acid and glyphosate isopropyl amine is prepared as follows:

Ingredient	Quantity (% w/w)
glufosinate acid	15.4
glyphosate IPA	29.0
multipart amine(C ₁₂ -C ₁₄)	20.0
wetting agent	15.0

organic solvent	10.0
ammonium sulfate	5.0
water	q.s.

Example 9: A herbicidal intermixture according to the present invention comprising glufosinate acid and glyphosate isopropyl amine is prepared as follows:

Ingredient	Quantity (% w/w)
glufosinate acid	15.4
glyphosate IPA	18.5
multipart amine(C ₁₀ -C ₁₈)	20.0
wetting agent	15.0
organic solvent	10.0
ammonium sulfate	5.0
water	q.s.

5

Example 10: A herbicidal intermixture according to the present invention comprising glufosinate acid and glyphosate isopropyl amine is prepared as follows

Ingredient	Quantity (% w/w)
glufosinate acid	15.4
glyphosate IPA	29.0
multipart amine(C ₁₀ -C ₁₈)	20.0
wetting agent	15.0
organic solvent	10.0
ammonium sulfate	5.0
water	q.s.

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Example 11: A herbicidal intermixture according to the present invention comprising glufosinate acid and glyphosate acid is prepared as follows

Ingredient	Quantity (% w/w)
glufosinate acid	15.4
glyphosate acid	15.0
multipart amine(C ₈ -C ₂₀)	20.0
wetting agent	15.0
organic solvent	10.0
ammonium sulfate	5.0
water	q.s.

5 Example 12: A herbicidal intermixture according to the present invention comprising glufosinate acid and glyphosate acid is prepared as follows:

Ingredient	Quantity (% w/w)
glufosinate acid	15.4
glyphosate acid	15.0
multipart amine (C ₁₀ -C ₂₀)	20.0
wetting agent	15.0
organic solvent	10.0
ammonium sulfate	5.0
water	q.s.

Example 13: A herbicidal intermixture according to the present invention comprising glufosinate acid and glyphosate acid is prepared as follows:

Ingredient	Quantity (% w/w)
glufosinate acid	15.4
glyphosate acid	15.0

multipart amine (C ₁₀ -C ₁₈)	20.0
wetting agent	15.0
organic solvent	10.0
ammonium sulfate	5.0
water	q.s.

Field Trial:

Field trials were carried out in arid regions using the herbicidal intermixtures comprising glufosinate prepared according to the present invention as the broad spectrum herbicide in arid regions. The compositions were diluted with water and optionally with other tank mix auxiliaries and applied to broad leave weeds, grasses and sedges in the arid region.

After treatment using composition (Example 2) prepared according to the present invention, chlorosis followed by necrosis of the weeds were observed demonstrating the bio-efficacy of the new compositions. A market sample of glufosinate ammonium (Liberty 280 SL Glufosinate ammonium) was also tested to compare the results. The observations at 7 days, 14 days and 21 days after application were summarized in below table (table 1).

Table 1: % weed control

Treatment	Rate of application	% weed control (Palmer Amaranth)			% weed control (Kochia)		
		7 days	14 days	21 days	7 days	14 days	21 days
Example 2	0.61 lb /A	36.7	83.3	90	43.3	86.7	90
Example 2	0.835 lb /A	43.3	90	90	46.7	90	90
Market sample	0.73 lb/A	26.7	63.3	53.3	30	56.7	56.7

The field testing result as shown in the above table evidently reveal that the compositions according to the present invention is extremely effective for weed control. Even at a low rate, the composition according to the present invention is highly bio efficacious compared to formulations available in the market.

- 5 The instant invention is more specifically explained by above examples. However, it should be understood that the scope of the present invention is not limited by the examples in any manner. It will be appreciated by any person skilled in this art that the present invention includes aforesaid examples and further can be modified and altered within the technical scope of the present invention.

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Dated this the 25th day of May 2018



Dr. Sanchita Ganguli
Of S. MAJUMDAR & CO.
Applicant's Agent

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FORM 1 THE PATENTS ACT, 1970 (39 of 1970) and The Patents Rules, 2003 APPLICATION FOR GRANT OF PATENT [See section 7, 54 & 135 and sub-rule (1) of rule 20]				(FOR OFFICE USE ONLY)	
		Application No :			
		Filing Date :			
		Amount of Fee Paid :			
		CBR No :			
		Signature :			
1. APPLICANT'S REFERENCE / IDENTIFICATION NO. (AS ALLOTTED BY OFFICE)					
2. TYPE OF APPLICATION [Please tick (✓) at the appropriate category]					
Ordinary (✓)		Convention ()		PCT-NP ()	
Divisional ()	Patent of Addition ()	Divisional ()	Patent of Addition ()	Divisional ()	Patent of Addition ()

3A. APPLICANT(S)

Name in Full	Nationality	Country of Residence	Address of the Applicant		
UPL LIMITED	An Indian Company	India	House No.	Agrochemical Plant Durgachak Haldia Midnapore West Bengal India 721 602	
			Street		
			City		
			State		
			Country		
			Pin code		

3B. CATEGORY OF APPLICANT [Please tick (✓) at the appropriate category]

Natural Person ()	Other than Natural Person		
	Small Entity ()	Startup ()	Others (✓)

4. INVENTOR(S) [Please tick (✓) at the appropriate category]

Are all the inventor(s) same as the applicant(s) named above ?	YES ()	NO (✓)
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If "No", furnish the details of the inventor(s)					
Name in Full	Nationality	Country of Residence	Address of the Inventor		
JADHAV, Prakash Mahadeo	A US citizen	USA	House No.	1202 Rustic Ct,	
			Street	Eagle Chase Lawrenceville,	
			City	New Jersey	
			State		
			Country	USA	
			Pin code	08648	
SKORCZYNSKI, Stephen	An US citizen	USA	House No.	24,	
			Street	Riverdale Road, Yardley,	
			City	Pennsylvania	
			State		
			Country	USA	
			Pin code	19067	
SHROFF, Jaidev Rajnikant	A British Citizen	Dubai - U.A.E.	House No.	206, Swiss Tower, Cluster Y	
			Street	Jumeirah Lake Towers, P.O. Box: 33421	
			City		
			State		
			Country	Dubai - U.A.E.	
			Pin code		
SHROFF, Vikram Rajnikant	A British Citizen	Dubai - U.A.E.	House No.	206, Swiss Tower, Cluster Y	
			Street	Jumeirah Lake Towers, P.O. Box: 33421	
			City		
			State		
			Country	Dubai - U.A.E.	
			Pin code		
5. TITLE OF THE INVENTION: AQUEOUS HERBICIDAL INTERMIXTURES					
6. AUTHORISED REGISTERED PATENT AGENT(S)	IN/PA No.	625			
	Name	Dr. Sanchita Ganguli			
	Mobile No.	9331827882			
7. ADDRESS FOR SERVICE OF APPLICANT IN INDIA	Name	S. MAJUMDAR & CO.			
	Postal Address	5 Harish Mukherjee Road, Kolkata – 700 025, West Bengal, India			
	Telephone No.	(033) 2455 7484 / 85 / 86			
	Mobile No.	9331827882			
	Fax No.	(033) 2455 7487 / 88			
	E-mail ID	cal@patentindia.com			
8. IN CASE OF APPLICATION CLAIMING PRIORITY OF APPLICATION FILED IN CONVENTION COUNTRY, PARTICULARS OF CONVENTION APPLICATION					
COUNTRY	APPLICATION NUMBER	FILING DATE	NAME OF THE APPLICANT	TITLE OF THE INVENTION	IPR (as classified in the

					convention country)

9. IN CASE OF PCT NATIONAL PHASE APPLICATION, PARTICULARS OF INTERNATIONAL APPLICATION FILED UNDER PATENT COOPERATION TREATY (PCT)

International application number	International filing date as allotted by the receiving office

10. IN CASE OF DIVISIONAL APPLICATION FILED UNDER SECTION 16, PARTICULARS OF ORIGINAL (FIRST) APPLICATION

Original (first) application number	Date of filing of Original (first) application

11. IN CASE OF PATENT OF ADDITION FILED UNDER SECTION 54, PARTICULARS OF MAIN APPLICATION OR PATENT

Main application / patent Number	Date of filing of main application

12. DECLARATIONS

(i) Declaration by the inventor(s)

(In case the applicant is an assignee : the inventor(s) may sign herein below or the applicant may upload the assignment or enclose the assignment with this application for patent or send the assignment by post/electronic transmission duly authenticated within the prescribed period).

We, the above named inventor(s) are the true & first inventor(s) for this invention and declare that the applicant(s) herein are our assignee or legal representative.

(a) Date _____

(b) Signature(s) of the inventor(s):

(c) Name of the inventor: **JADHAV, Prakash Mahadeo**

(a) Date _____

(b) Signature(s) of the inventor(s):

(c) Name of the inventor: **SKORCZYNSKI, Stephen**

(a) Date _____

(b) Signature(s) of the inventor(s):

(c) Name of the inventor: **SHROFF, Jaidev Rajnikant**

(a) Date _____

(b) Signature(s) of the inventor(s):

(c) Name of the inventor: **SHROFF, Vikram Rajnikant**

(ii) Declaration by the applicant(s) in the convention country

(In case the applicant in India is different than the applicant in the convention country: the applicant in the convention country may sign herein below or applicant in India may upload the assignment from the applicant in the convention country or enclose the said assignment with this application for patent or send the assignment by post/electronic transmission duly authenticated within

the prescribed period)

I/We, the applicant(s) in the convention country declare that the applicant(s) herein is/are my/our assignee or legal representative

(a) Date _____

(b) Signature(s) _____

(c) Name(s) of the Signatory: _____

(iii) Declaration by the applicant(s):

I/We, the applicant(s) hereby declare(s) that :

- ☐ We are in possession of the above-mentioned invention
- ☐ The provisional specification relating to the invention is filed with this application.
- ☒ The invention as disclosed in the specification uses the biological material from India and the necessary permission from the competent authority shall be submitted by us before the grant of patent to us.
- ☐ There is no lawful ground of objection(s) to the grant of the Patent to us.
- ☒ We are the true & first inventor(s).
- ☐ We are the assignee or legal representative of true & first inventor(s).
- ☒ The application or each of the applications, particulars of which are given in Paragraph-8, was the first application in convention country/countries in respect of my/our invention.
- ☒ I/We claim the priority from the above mentioned application(s) filed in convention country/ countries and state that no application for protection in respect of the invention had been made in a convention country before that date by me/us or by any person from which I/we derive the title.
- ☒ My/Our application in India is based on international application under Patent Cooperation Treaty (PCT) as mentioned in Paragraph-9.
- ☒ The application is divided out of my/our application particulars of which is given in Para-10 and pray that this application may be treated as deemed to have been filed on **(DD/MM/YYYY)** under Section 16 of the Act.
- ☒ The said invention is an improvement in or modification of the invention particulars of which are given in Paragraph-11.

13. FOLLOWING ARE THE ATTACHMENTS WITH THE APPLICATION

(a) Form 2

Item	Details	Fee	Remarks
Provisional specification)#	No. of pages (21)		
No. of claims	No. of claims and no. of pages		
Abstract	No. of pages		
No. of Drawing(s)	No. of drawings () and No. of pages ()		

In case of a complete specification, if the applicant desires to adopt the drawings filed with his provisional specification as the drawings or part of the drawings for the complete specification under rule 13(4), the number of such pages filed with the provisional specification are required to be mentioned here.

(b)

(a) Form -2 with provisional specification (2 copies). No. of pages **21**

(b) Statement and undertaking on Form 3

(c) General Power of Attorney in our favour.

(d) Fee for excess pages exceeding 30 = NIL

(e) Fee for application

= Rs. 8,000.00

Fee Rs. 8000/-

We hereby declare that to the best of our knowledge, information and belief the fact and matters stated herein are correct and we request that a patent may be granted to us for the said invention.

Dated this 25th day of May 2018



Dr. Sanchita Ganguli
of S. MAJUMDAR & CO.
Applicants' Agent

To
The Controller of Patents
The Patent Office,
At Kolkata

Note:-

- * Repeat boxes in case of more than one entry.
- * To be signed by the applicant(s) or by authorized registered patent agent otherwise where mentioned.
- * Tick (✓)/cross (x) whichever is applicable/not applicable in declaration in paragraph – 12.
- * Name of the inventor and applicant should be given in full, family name in the beginning.
- * Strike out the portion which is/are not applicable.
- * For fee: See First Schedule