

Cost-efficient WeedLock Bioherbicide Nanoemulsion Composition

PATENT NO. PI 2023001976

Efficacy study

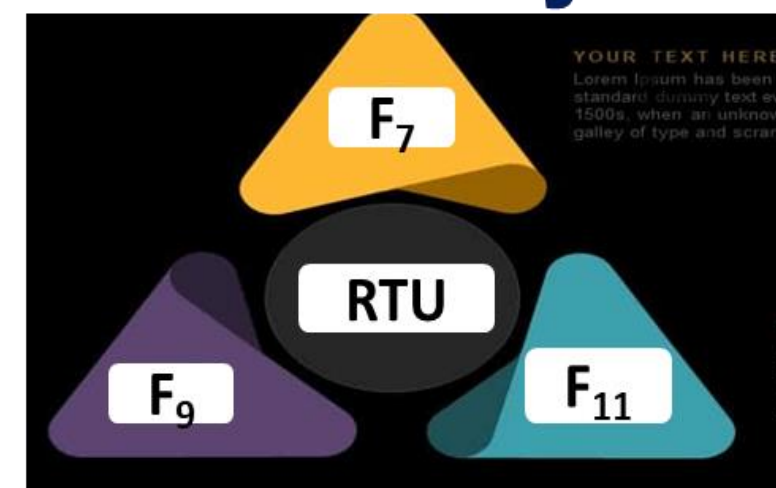


Figure 2 : Efficacy of RTU formulations



New Formulation



Untreated (control)



F₇



F₉



F₁₁

Mixed-culture
✓ *A. conyzoides*
✓ *E. indica*
✓ *C. iria*

> F₉: 98.39% (Highest efficacy)
> F₇: 83.90% (Lowest efficacy)

Comparison with Commercial Herbicides

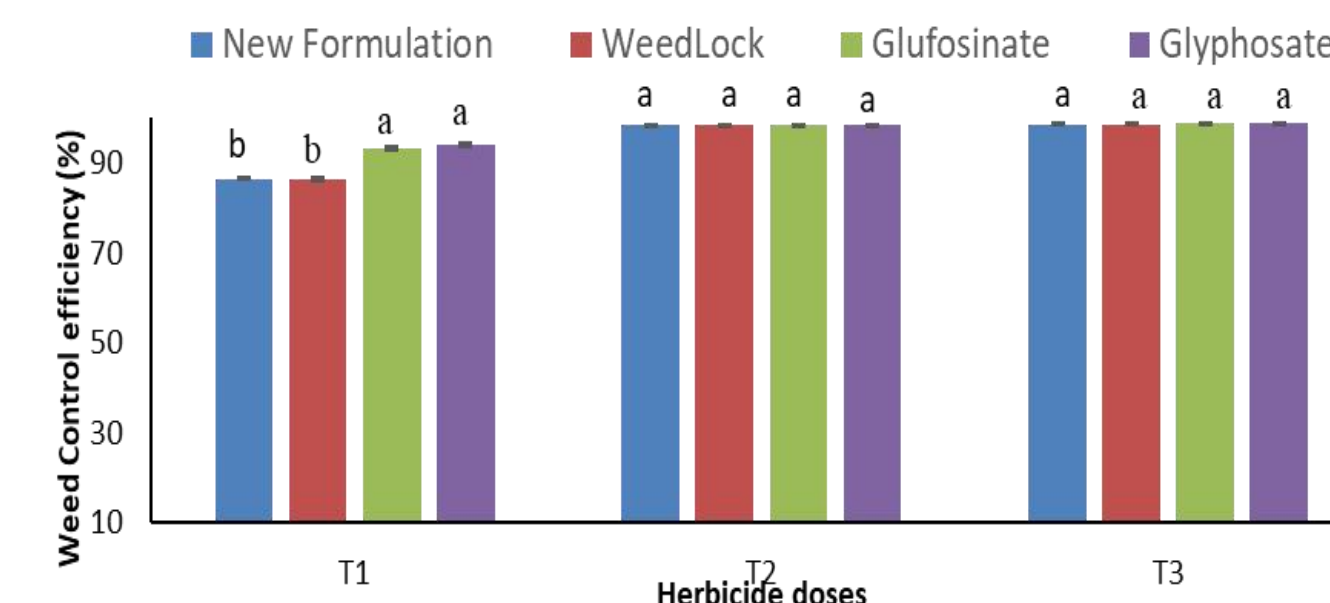


Figure 3 : Weed control efficiency after treated with herbicides. The means having same letter among the treatments are not significant at $p > 0.05$. T1 : Half recommended rate, T2 : Recommended rate, T3 : Double recommended rate



Figure 4 : Weed control efficiency of new formulation

WeedLock RTU nanoemulsion

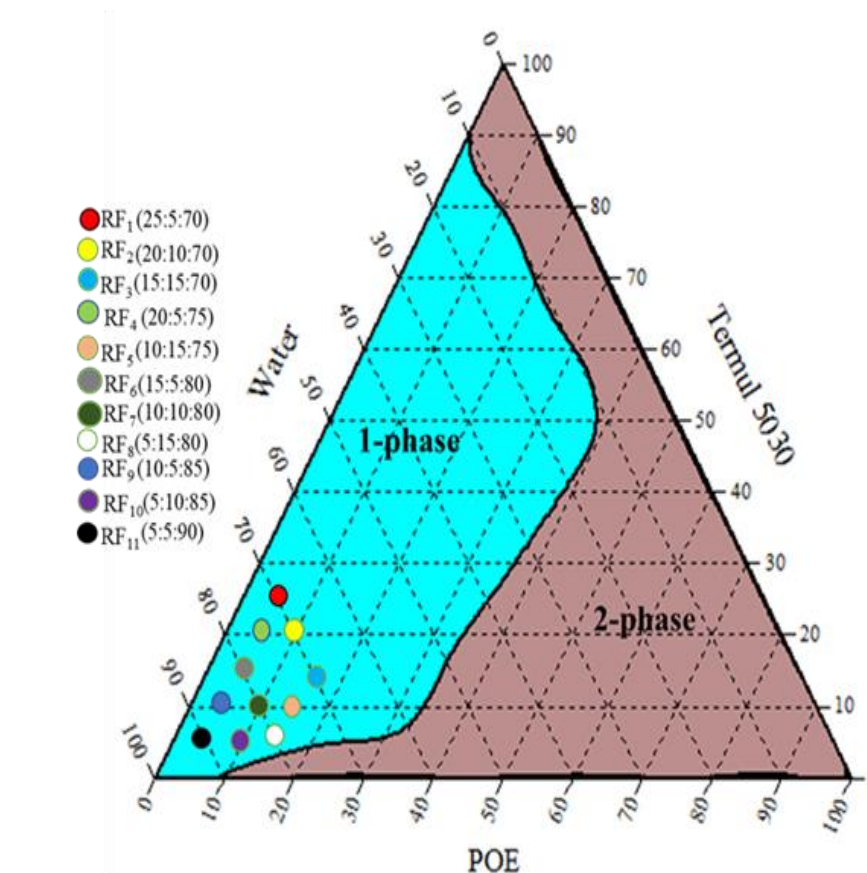


Figure 1: Phase diagram

- ❖ 11 points selected
- ❖ Incorporated with 5% a.i.
- ❖ Stability test
- ❖ The most stable formulations were selected for efficacy test

BRIEF TECHNOLOGY

- A novel ready-to-use nanoemulsion formulation is developed from WeedLock bioherbicide which is cost-efficient.
- Bioherbicide nanoemulsion composition comprising of wild tomato plant extract, carrier oil, non-ionic surfactant and inorganic solvent.

CURRENT ISSUES

- Constant use of chemical herbicides cause herbicide resistance, residue in crops, an ecological imbalance between harmful and beneficial organisms, and environmental pollution.
- Natural ingredients are less hazardous to non-target organisms and environment, biodegradable, and are usually less expensive than synthetic chemical herbicides
- The current formulation of WeedLock contains 10% active ingredient (EGX-101™) and 90% inert ingredient (ethanol), which is quite pricey.

INVENTIVENESS & NOVELTY

- The present invention comprising 2-Undecanone (EGX-101™), a natural derivative of the wild tomato plant, surfactant, carrier oil and inorganic solvent.
- The plant-based bioherbicide formulation led to excellent weed control efficacy in comparison to current commercial WeedLock.
- The production cost was lower than the current commercial WeedLock, making it more affordable to farmers.

USEFULNESS & APPLICATION

- Directly spray to the target weed as ready-to-use formulation.
- Exhibit excellent weed control efficacy as contact bioherbicide to manage broadleaf, grasses and sedges weeds.

IMPACT OF THE PRODUCT

- This ready-to-use formulation is safer and 'greener' that controls a wide range of weed species.
- This bioherbicide can be an effective alternative to the current chemical herbicides for eco-friendly sustainable weed management.

MARKET POTENTIAL

- Agriculture industry
- Landscape
- Urban farming
- Home gardening

Technology Readiness Level (TRL)

- 9 - Product /System proven
- Completed operational evaluation
- Ready for full-rate



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