KROPUP-50

BROAD-SPECTRUM, NON-SELECTIVE HERBAL WEEDICIDE

UNDERSTANDING WEEDS AND SAFE WEED CONTROL

A **weed** is essentially a plant that grows where it is not wanted — often referred to as *"a plant in the wrong place."* Common examples include vegetation that invades farm fields, gardens, lawns, and public spaces such as parks. A plant is typically classified as a weed when it exhibits one or more of the following traits:

- **Lacks recognised value** — medicinal, nutritional, industrial, or energetic.
- **Rapid growth and invasiveness** — enabling it to overrun regular crops and native vegetation.
- **Aggressive competition** — for space, sunlight, water, and nutrients, thereby reducing crop productivity and degrading arable land.

It's important to understand that the classification of a plant as a "weed" is **context-dependent**. A species may be considered invasive in one setting and beneficial in another, depending on ecological, agricultural, or ornamental perspectives.

THE NEED FOR SAFE WEED MANAGEMENT

Weed control is the botanical equivalent of pest control, aimed at limiting or eliminating unwanted plants — especially those that are noxious or invasive — to safeguard beneficial flora and fauna. In both agricultural and ecological settings, especially in heritage zones and protected reserves, it is crucial to prevent non-native plant species from displacing native biodiversity.

A good weedicide must meet two essential criteria:

a. Effectively eradicate unwanted weeds.
b. Be safe for humans, animals, and the surrounding ecosystem.

CONVENTIONAL WEED CONTROL METHODS

- Methods of weed eradication typically include:
- Manual removal (e.g., hoeing)
- Mechanical cultivation
- Mulching or smothering
- Thermal treatments (solarisation or flame)
- Chemical herbicides

Among chemical solutions, glyphosate is the most widely used post-emergent, non-selective herbicide. It works by blocking the shikimic acid pathway, a vital biochemical route in plants and certain microorganisms, preventing protein synthesis required for plant growth. Once absorbed through the leaves, it translocates to the roots, killing the entire plant within 2–4 weeks.

Though glyphosate is known for its efficacy and is legally required to degrade in the soil within a few weeks, **growing scientific evidence** has raised concerns over its potential **toxicity to humans and animals**, leading to global calls for safer alternatives.

The legal status of Glyphosate usage as a weed-killer

Monsanto's Roundup, whose active ingredient is glyphosate, has been at the center of global controversy, scientific debate, and extensive litigation — particularly in the United States.

In 2015, the **International Agency for Research on Cancer (IARC)**, a part of the World Health Organization, classified glyphosate as "*probably carcinogenic to humans*" (Group 2A). This triggered widespread concern about glyphosate's safety and ignited a global re-evaluation of Roundup's regulatory approval.

Glyphosate has been blamed for harming beneficial insects, earthworms, soil microbiota, and aquatic ecosystems. It has also been implicated in the rise of glyphosate-resistant "superweeds," which require stronger herbicides to control.

Major Lawsuits and Court Verdicts

Dewayne "Lee" Johnson v. Monsanto **(California, 2018)**

- Plaintiff: A former school groundskeeper who developed non-Hodgkin lymphoma after prolonged Roundup exposure.
- Verdict: Jury awarded $289 million in damages (later reduced to $78 million, then $21 million on appeal).
- Significance: This was the first major court victory against Monsanto over Roundup and set a precedent for subsequent lawsuits.

Edwin Hardeman v. Monsanto **(California, 2019)**

- Plaintiff: Developed non-Hodgkin lymphoma after 26 years of using Roundup.
- Verdict: Jury awarded $80 million, later reduced to $25 million.
- Significance: First federal bellwether trial; court allowed scientific evidence showing glyphosate's carcinogenic potential.

Pilliod v. Monsanto **(California, 2019)**

- Plaintiffs: A married couple, both diagnosed with non-Hodgkin lymphoma.
- Verdict: Jury awarded over $2 billion (reduced to $86.7 million).
- Significance: The largest Roundup judgment to date. Jury found Monsanto acted with "malice and oppression."

Class Action and Global Settlement

- By 2020, Bayer (which acquired Monsanto in 2018) faced **over 125,000 lawsuits** related to Roundup.
- Bayer agreed to pay **up to $10.9 billion** to settle existing lawsuits in the US. However, the **U.S. Supreme Court in 2022 refused to hear Bayer's appeal**, allowing lower-court rulings against it to stand.

Global Regulatory and Legal Status

- **Banned or restricted** in over **20 countries**, including Germany, France, Austria, Vietnam, and Mexico.
- The **EU renewed glyphosate's license in 2023** for 10 years but under stricter conditions, amid growing pushback from environmental and health groups.
- In India, glyphosate is not banned but restricted — only licensed pest control operators are allowed to apply it, not farmers.

PRESENTING THE HERBAL ALTERNATIVE : KROPUP-50

EcoHealth Products Pvt Ltd introduces **KROPUP-50**, a safe, non-toxic, and highly effective herbal weedicide, formulated using concentrated extracts of Neem and natural plant citrates.

KROPUP-50 acts as a post-emergent, non-selective chlorophyll disruptor. It targets the chlorophyll pigment in green plants, disrupting photosynthesis — the fundamental process by which plants produce food.

Mechanism of Action:

- Neem-based aqueous extract reduces chlorophyll and cell biomass in plant leaves.
- This leads to decreased CO_2 assimilation and inhibition of photosynthetic activity.

- The resulting nutrient starvation halts cell division and metabolic processes.
- The green leaves turn brown, and the plant withers within 2–3 days.

Since **KROPUP-50** is 100% organic and contains **no harmful residues**, the withered weeds can be safely **used as mulch or converted into compost**. Rich in nitrogen and phosphate, they naturally enhance soil fertility.

Neem extracts combined with **natural citrates** act synergistically on **chlorophyll-containing tissues in plants**, particularly green weeds, by disrupting the photosynthetic machinery and inducing cellular stress. Here's a breakdown of the **mode of action**:

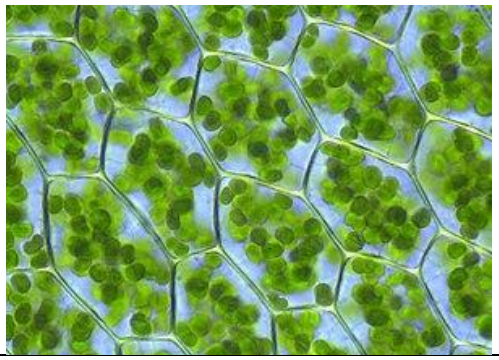
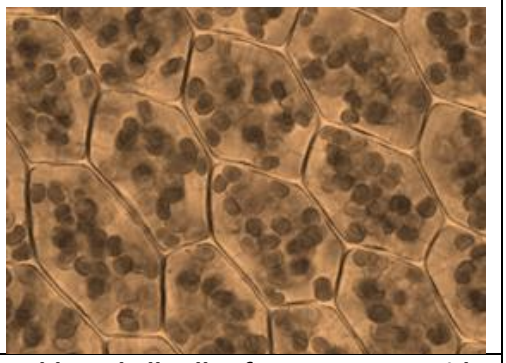
HOW NEEM EXTRACTS & CITRATES ACT ON CHLOROPHYLL

1. Neem Extracts (Primarily Azadirachtin and Limonoids): Neem contains several bioactive compounds, most notably:

- **Azadirachtin**
- **Salannin**
- **Nimbin**
- **Gedunin**
- **Limonoids**

These compounds have the following effects:

- Interfere with cell division and protein synthesis in plant cells.
- Inhibit chlorophyll biosynthesis by downregulating key enzymes involved in the chlorophyll pathway.
- Cause membrane disruption, leading to leakage of chlorophyll and cell contents.
- Induce oxidative stress, promoting the generation of reactive oxygen species (ROS), which damage cellular organelles including chloroplasts.

	
Normal chlorophyll cells	***Chlorophyll cells after treatment with KropUp-50***

2. Citrates (Natural Organic Acids like Citric Acid) : Citrates act as chelating agents and acidifiers, and enhance neem's efficacy in three ways:

- Break down leaf cuticle (waxy layer), allowing better penetration of neem bioactives into leaf tissue.
- Chelate metal ions (e.g., Mg^{2+}), which are essential co-factors for chlorophyll stability. Magnesium is the central atom in the chlorophyll molecule, and its removal leads to chlorophyll degradation.
- Disrupt pH balance inside chloroplasts, affecting photosynthetic enzyme function and destabilizing thylakoid membranes.

RESULTING EFFECTS ON CHLOROPHYLL AND PLANT PHYSIOLOGY

Effect	Mechanism
Chlorophyll degradation	Disruption of magnesium ion balance and oxidative damage
Loss of green pigment	Chlorophyll a & b break down, turning leaves yellow/brown
Photosynthesis stops	Light-harvesting complexes and electron transport chains collapse
Stunted metabolism	CO_2 assimilation halts; no glucose synthesis
Cell death	Due to energy starvation, enzyme inhibition, and membrane rupture

BEFORE TREATMENT	60 MINUTES AFTER SPRAYING KROPUP
	

TRIALS ON INVASIVE LANTANA SHRUBS BY KARNATAKA FOREST DEPARTMENT	
Lantana shrubs before treatment	***Lantana shrubs 12 hours after spraying KROPUP-50***
	

VISIBLE OUTCOME

Within hours of application:

- Leaves begin **wilting and discoloring**.

Within 2–3 days, the plant **completely withers** and dies due to inability to photosynthesize or sustain cellular processes.

WHY THIS COMBINATION IS SUPERIOR FOR ORGANIC WEED CONTROL

- Systemic damage without chemical residues.
- Non-selective chlorophyll targeting, affecting all unwanted green weeds.
- Biodegradable and safe for humans, animals, and soil microbiota.
- Dead weeds can be used as mulch, rich in remaining organic nutrients.

DOSING & APPLICATION GUIDELINES:

- **Dilution**: 1 litre of **KROPUP-50** in 50 litres of water.
- **Coverage**: 8 litres per acre (400 litres of diluted spray solution).
- **Application**: Spray directly on green weeds using a knapsack or power sprayer.
- **Visible effect**: Leaves turn yellow and then brown **within a few hours**.
- **Plant death**: Within **2–3 days**.

The dead plant material can be spread as mulch or incorporated into compost to nourish the soil.

ADVANTAGES OF KROPUP-50 OVER CHEMICAL WEEDICIDES

Feature	KROPUP-50 (Herbal)	Conventional Chemical Weedicides
Composition	Neem + Natural Plant Extracts	Synthetic chemicals (e.g., Glyphosate)
Toxicity	Non-toxic, food-grade	Varying degrees of toxicity
Environmental Impact	Biodegradable and eco-friendly	Potential soil/water contamination
Safety	Safe for humans, animals, and pollinators	May pose health risks
Soil Impact	Improves fertility (mulch/manure)	Dead biomass often unusable
Ease of Use	Dilute and spray	Similar, but with safety gear required
Legal Restrictions	None	Subject to regulatory scrutiny and bans in some regions

KROPUP-50 is a safe, sustainable, and effective herbal solution to weed management. It not only eliminates unwanted vegetation but also contributes positively to soil health — unlike synthetic weedicides which often pose long-term ecological and health risks.

By integrating **KROPUP-50** into your weed control strategy, you choose green farming, safer food systems, and regenerative agriculture.

ANOTHER ECO-FRIENDLY PRODUCT FROM

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