

Acute Toxicity

- Acute toxicity can be defined as a chemical's or pesticide's capacity to bring systemic damage as a consequence of one-time exposure to a fairly large amount of the chemical.
- Headache, rash, vision problems, and breathlessness are common symptoms found in farmers exposed to acute pesticide poisoning.
- Acute toxicity tests (short term) are typically employed for determining the effects of exposure to high amounts of chemicals. The end result indicates the level of lethality

Acute Toxicity

- The acute toxicity of pesticide can cause injury to a person or an animal with single exposure of short duration.
- This exposure can occur through different routes, such as dermal (skin), inhalation (lungs), oral (mouth), and eyes.
- Test animals are examined on the basis of their dermal toxicity, inhalation toxicity, and oral toxicity for finding out the acute toxicity.
- Eye and skin irritations are also considered while examining the test animals.

Acute Toxicity

- **LD50** is the term usually used while referring to acute toxicity.
- **LD stands for lethal dose** and 50 implies that the 50 per cent of the animals on whom the test was done were severely affected by the given dose under the controlled conditions.
- LD50 is expressed in terms of milligrams (mg) of pesticide per kilogram (kg) of the body weight and has been accepted as a standard for measuring acute toxicity .

Acute Toxicity

- Test animals are observed for a particular period of time after giving chemical's dose either orally or through injection. **The dose required to kill 50 per cent of the test animals is expressed by LD50**
- The value of LD₅₀ confirms the toxicity of the pesticide.
- The lower the value of the LD₅₀, the more toxic the pesticide is and vice versa

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- **LC50:** The acute toxicity test can estimate the **concentration** of the medium required to kill 50 percent of test animals. This is called the **lethal concentration (LC50)**
- The LC50 values are expressed in milligrams per litre.
- The lower the value of LC50, the more toxic is the pesticide and vice versa

Table 2 Acute toxicity measures and warnings

<i>Categories</i>	<i>Signal word</i>	<i>Categories of acute toxicity</i>			<i>Oral lethal dose</i>
		<i>LD₅₀</i>	<i>LD₅₀</i>	<i>LC₅₀</i>	
		<i>Oral</i> <i>(mg/kg)</i>	<i>Dermal</i> <i>(mg/kg)</i>	<i>Inhale</i> <i>(mg/L)</i>	
I Highly toxic	Danger poison (skull and crossbones)	0–50	0–200	0–0.2	A few drops to a teaspoonful
II Moderately toxic	Warning	50–500	200–2,000	0.2–2.0	Over a teaspoonful to one ounce
III Slightly toxic	Caution	500–5,000	2,000–20,000	2.0–20	Over one ounce to one pint
IV Relatively non-toxic	Caution (or no signal word)	5,000+	20,000+	20+	Over one pint to one pound

Note: Probable for a 68 kg person

Source Nesheim, Fishel, and Mossler (2012)