

MCQ Question · mcqquestion.com

Carbofuran, Methyl Parathion, Phorate, and Triazophos

Free · Share

Carbofuran, Methyl Parathion, Phorate, and Triazophos

Carbofuran, methyl parathion, phorate and triazophos are insect-killing farm pesticides. They appeared together in a 2019 UPSC question. **They do not all share the same legal status in India.**



Pesticide spraying in a paddy field, Kadapa district, Andhra Pradesh. Photo: PJeganathan, CC BY-SA 4.0, via Wikimedia Commons.

At a Glance

Four facts to hold on to.

01
Use

All four are agricultural pesticides.

02
Families

Carbofuran: carbamate. Other three: organophosphates.

03
WHO Class Ia

Methyl parathion, phorate.

04
WHO Class Ib

Carbofuran, triazophos.

PesticideA chemical that controls pests.
AcetylcholinesteraseAn enzyme that switches off nerve signals.
Pre-harvest interval Wait between last spray and harvest.
MRLLegal upper limit for a residue in food.

What These Four Chemicals Do

Must Know

Pesticide is the broad word

- A pesticide controls a pest: insects, weeds, fungi or other harmful organisms.
- An insecticide targets insects. Some also affect mites or nematodes.
- All four names here are insecticidal active ingredients.
- They are not food additives.
- Past use does not mean all four can be applied legally today.

Different families, one main nerve target

Ingredient	Family	Main action
Carbofuran	Carbamate	Blocks acetylcholinesterase
Methyl parathion	Organophosphate	Blocks the same enzyme
Phorate	Organophosphate	Blocks the same enzyme
Triazophos	Organophosphate	Blocks the same enzyme

- The enzyme helps switch off a nerve signal after it has passed.
- Blocking it stops an insect's normal movement and feeding.
- Humans and animals also have this enzyme. That explains the poisoning risk.
- IRAC places all four in Group 1: carbofuran in 1A, the other three in 1B.
- Source: IRAC mode-of-action guide.

From use to exposure

- A spray can drift in wind.
- A soil product can reach water through runoff.
- Birds or other wildlife may touch treated material.

- Poison bait can harm animals that were not targeted.

> **Quick check 1.** Carbofuran, methyl parathion, phorate and triazophos are all pesticides used in Indian agriculture. *(True or False?)* See answer ↓

Exam Edge

Previous Year Questions

UPSC 2019 asked what carbofuran, methyl parathion, phorate and triazophos are used as.

> **Quick check 2.** UPSC 2019 confirmed all four chemicals are used as pesticides in agriculture. *(True or False?)* See answer ↓

Hazard, Exposure and Food Residues

Good to Know

What do WHO hazard classes mean?

- WHO ranks technical pesticide ingredients by short-term poisoning hazard.
- **Class Ia** is extremely hazardous: methyl parathion and phorate.
- **Class Ib** is highly hazardous: carbofuran and triazophos.
- A class is not a measured dose. Risk also depends on formulation and exposure.
- It is not an Indian registration list.
- Source: WHO 2019 classification.

Labels, waiting periods and residues

- A legal label names the crops, pests, dose and safety steps.
- The **pre-harvest interval** is the wait between the last treatment and harvest.
- A **maximum residue limit** is a legal cap on residue in food. These are different rules.
- A banned ingredient has no legal crop use just because an old label listed a waiting period.
- Sources: Registration committee waiting periods and WHO food-residue guide.

If exposure is suspected

- Leave the treated area and get urgent medical help.
- Remove contaminated clothing and wash skin with water.
- Take the container or label to the doctor if safe.

- Do not give home antidotes or delay care.

> **Quick check 3.** Carbofuran and triazophos fall in WHO Class Ia, the “extremely hazardous” tier. *(True or False?)* See answer ↓

India’s Dated Rules, Wildlife and Safer Choices

Great to Know

Read the status by ingredient and date

Ingredient	Status in the 31 March 2024 official list
Carbofuran	Not in the 2018 group ban. A 2023 order restricted other formulations. The 3% encapsulated granule remained with crop labels.
Methyl parathion	The 2018 order banned import, manufacture and use.
Phorate	The 2018 order phased out domestic use. A 2020 order allowed manufacture for export only.
Triazophos	The 2018 order phased out domestic use. A 2020 order allowed manufacture for export only.

- Rules change, so legal use needs a fresh official check.
- An export-only permission does not allow use on Indian farms.
- Sources: PPQS status list and 2020 Gazette order.

The 2018 order

- An expert group led by Dr Anupam Verma reviewed 66 pesticides that other countries had banned or restricted.
- Eighteen were banned in 2018. India used a phased approach for some others.
- Triazophos import and domestic manufacture stopped from January 2019. Its Indian use ended in December 2020.
- Source: Agriculture Ministry reply, 2023.

A wildlife warning near Dudhwa

- In 2026, reports described 25 dead vultures and several dogs near Dudhwa Tiger Reserve.
- Reports said the Indian Veterinary Research Institute found carbofuran in samples.
- Scavengers share food sources, so poison meant for one animal can reach another.
- The exact chain at any site needs investigation.
- Source: Live Hindustan report.

What can a farmer do instead?

- **Integrated pest management** starts with watching the crop and identifying the pest.
- Use crop rotation, clean seed, traps and natural enemies where suitable.
- Use a registered chemical only if needed and allowed for that crop.
- Rotating between these four does not help resistance. All four hit the same nerve enzyme.
- Source: Agriculture Ministry on IPM.

Think it through: why did the Dudhwa vulture deaths happen even though nobody set out to poison vultures?

Scavengers share food sources. Poison placed for one animal can reach another that feeds there. Carbofuran can harm birds and mammals. That is why poison bait is a serious non-target risk. Investigators must test samples before naming a cause at any site.

Quick check 4. Carbofuran was not included in India's 2018 pesticide ban, despite its WHO Class Ib rating. *(True or False?)*

See answer ↓

Quick check 5. An expert panel led by Dr Anupam Verma reviewed 66 pesticides banned or restricted abroad but still sold in India. *(True or False?)* See answer ↓

Quick check 6. An export-only manufacturing permission means a pesticide can be used on Indian farms. *(True or False?)* See answer ↓

Quick Q&A

Which family is carbofuran?

Carbamate.

Class Ia pair?

Methyl parathion, phorate.

Which was left out of the 2018 ban?

Carbofuran.

Who led the 66-pesticide review?

Dr Anupam Verma.

Shared nerve target?

Acetylcholinesterase.

🎲 Practice: Four Pesticides: Uses, Risks, and India's Rules

3 verified questions from this topic.

🎲 More Environment and Ecology Practice

Related Topics

All Environment and Ecology Articles

Chemical Threats to Biodiversity

The Green Revolution and Crop Policy

Pollution, Ecosystems and Biodiversity

Practice MCQs

1. In India, the use of carbofuran, methyl parathion, phorate and triazophos is viewed with apprehension. These chemicals are used as

A. Preservatives in processed foods

B. Fruit-ripening agents

C. Moisturising agents in cosmetics

D. Pesticides in agriculture

See answer ↓

2. Methyl parathion and phorate, two organophosphate pesticides now banned in India, fall under which World Health Organization hazard class?

A. Class U - unlikely to present acute hazard

B. Class II - moderately hazardous

C. Class Ia - extremely hazardous

D. Class III - slightly hazardous

See answer ↓

3. In 2018 India banned 18 hazardous pesticides.

Which of these was NOT banned at once but phased out by 31 December 2020?

A. Triazophos

B. Methyl parathion

C. Diazinon

D. Carbofuran

See answer ↓

Answer Key

1. **D.** The correct answer is pesticides in agriculture. Carbofuran, methyl parathion, phorate, and triazophos are all crop-protection chemicals used to kill insects and pests on Indian farms, not food preservatives or cosmetic ingredients. ↑ Q1
2. **C.** The correct answer is Class Ia, the WHO's most severe hazard tier. Methyl parathion and phorate are organophosphates rated extremely hazardous, meaning even small doses can be fatal. Carbofuran and triazophos sit one notch lower, in Class Ib (highly hazardous). ↑ Q2
3. **A.** Triazophos was among six pesticides phased out by 31 December 2020. Methyl parathion and diazinon were banned with immediate effect. Carbofuran was not among the 18. ↑ Q3

Quick-check answers

1. **True.** ↑ 1
2. **True.** ↑ 2
3. **False.** ↑ 3
4. **True.** ↑ 4
5. **True.** ↑ 5
6. **False.** ↑ 6

Curated by Arsalan Zuberi · mcqquestion.com

Scan to read online

https://mcqquestion.com/articles/enveco0167-carbofuran-methyl-parathion-phorate-and-triazophos/