

Role and mode of action of anti-auxin, ripening retardant and plant stimulants in vegetable crop production

ANTI AUXINS

- THESE ARE THE CHEMICALS THAT INHIBIT THE ACTION OF AUXINS
- THEY CLOSELY RESEMBLE AUXIN BUT LACK IN ATLEAST ONE REQUIREMENT.

Examples

- 2, 3, 5 tri iodo benzoic acid (TIBA)
- Naphthyl thalamic acid (NPA)
- Clofibric acid
- 4,4,4-trifluoro-3-(indole-3-)butyric acid (TFIBA)
- Naphthyl-methyl-thio propionic acid
- m-tolyl phthalamic acid

APPLICATION

- TIBA @ 25-5-ml/litre – affects flowering, sex expression and yield in cucurbits .
- Application of Anti – Auxin before harvesting for leaf shedding in cotton.
- Anti-Auxin like TIBA, Naphthyl -methyl –thio propionic acid, induce flower bud formation in cauliflower.
- Application of HFCA(9-hydroxy-fluorene-9-carboxylic acid), NPA leads to elongation of internodes in wild pea.

RIPENING RETARDANTS

RIPENING OF FRUITS CAN BE DELAYED BY APPLICATION OF SOME INHIBITORS OF ETHYLENE BIO SYNTHESIS

Chemical Regulators

Potassium permanganate is a good ethylene absorbent. Using KMnO_4 coated newspaper as packing materials in the bottom delays ripening.

Ethylene synthesis inhibitors

(block synthesis of SAM → ACC)

AVG - Aminoethoxy Vinyl Glycine

MVG - Methoxy Vinyl Glycine

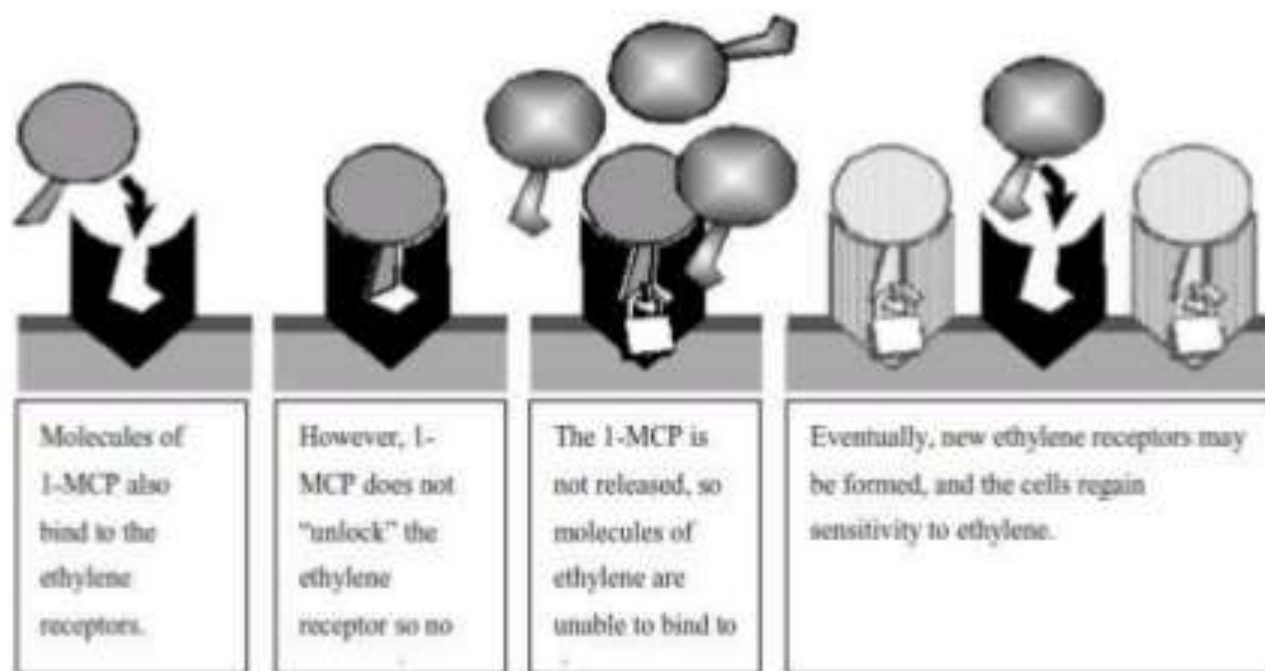
AOA - Amino Oxyacetic Acid

Inhibiting Ethylene Biosynthesis & Action

Biosynthesis inhibition.

- **AVG** - **A**minoethoxy **V**inyl **G**lycine
- **MVG** - **M**ethoxy **V**inyl **G**lycine
- **AOA** - **A**mino **O**xyacetic **A**cid
Inhibits ACS (i.e., SAM → ACC)
- **Action inhibition**
 - 1-MCP (1-methylcyclopropene)
- Irreversibly binds to ethylene receptors
- “EthylBloc” and “SmartFresh”

1-MCP Mode of Action



- Works by tightly binding to the ethylene receptor site in fruit tissues, thereby blocking the effects of ethylene.
- Once ethylene production is prevented, It no longer promotes ripening and senescence .
- Blocking of ethylene receptor by 1-MCP gas causes fruits to be ripen and soften more slowly.

Plant stimulants

- Plant growth stimulants provide a key hormone or organic element that influences growth in a particular way.
- different from fertilizers you use to provide a supplemental meal for plants, although some stimulants may also contain plant nutrients.
- Stimulants can be applied to any kind of plant and have no toxic properties.

Plant stimulants

- Bone meal, super phosphate and triple phosphate
- Granular transplant fertilizer.
- Liquid concentrate transplant solution .
- Transplant solution with Vitamin B1.
- Alfalfa .
- Epsom salts.
- Kelp meal and seaweed.
- Willow tea.



THANK YOU

