

B.Sc. III Year (Theory)
Semester –VI
Paper XX (C)
Microbiology and Disease Management

Unit-2

Disease management:

2. Control methods

C. Fungicides

**iv. Heterocyclic nitrogenous compounds –
Captan**

Dr. S. S. Patale

Associate Professor

Department of Botany

Smt. S. K. Gandhi Arts, Amolak Science and P.H. Gandhi

Commerce College, Kada Dist. Beed

Email- sspatale@rediffmail.com Ph. 9823937501

HETEROCYCLIC NITROGENOUS COMPOUNDS

CAPTAN:

Captan is the common name adopted for N-trichloromethyl-thio-4-cyclohexane-1,2-dicarboximide. It is a heterocyclic nitrogenous compound. Kittleson (1952) prepared this compound and first reported its fungicidal activity. Hence in the beginning, it was called Kittleson's killer.

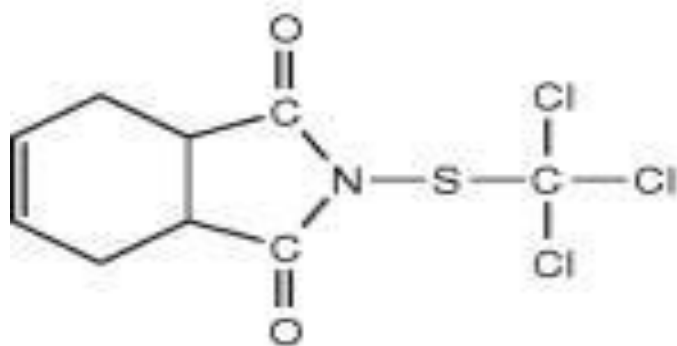
Heterocyclic Compounds.

Heterocyclic compounds are a rather heterogeneous group but include some of the best [fungicides](#), e.g., captan, [iprodione](#), and [vinclozolin](#). Most of them also inhibit the production of essential compounds containing —NH_2 and —SH groups (amino compounds and enzymes). Captan, is an excellent [fungicide](#) for the control of leaf spots, blights, and fruit rots on fruit [crops, vegetables](#), ornamentals, and turf. It is also used as a seed protectant for agronomic crops, vegetables, flowers, and grasses. Captan has also been reported to repel “seed-pulling” birds.

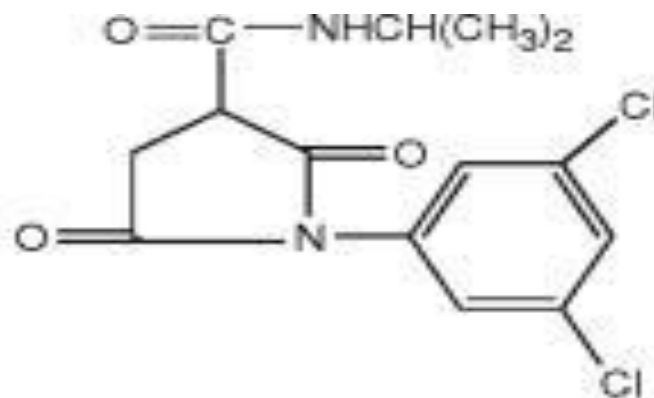
Iprodione, sold as Rovral, Chipco-26019, and Epic 30, is a broad-spectrum, foliage-contact fungicide. It inhibits [spore germination](#) and mycelial growth but shows mostly preventative and only early curative activity. It is effective against [Botrytis](#), [Monilinia](#), and [Sclerotinia](#) and also against [Alternaria](#) and [Rhizoctonia](#). It is applied most often as a foliar spray and also as a [postharvest](#) dip and as a seed treatment. Iprodione is used on turf, [stone fruits](#), grapes, peanuts, onions, lettuce, and other crops.

Flutolanil, a benzanilide, sold as Moncut, Contrast, or Prostar, is used as a protective systemic and curative fungicide against the basidiomycetes *Rhizoctonia*, [Sclerotium](#) *rolfsii*, [Corticium](#), and [Typhula](#). It is applied as a spray.

The structural formula of captan is:



Captan



Iprodione

Captan is commercially sold under different names such as Captan 50W or Captan 75W, Esso fungicide 406, Orthocide 406, Vancide 89 etc.

Hochstein and Cox (1956) suggested that captan competes with cocarboxylase (Thiamine pyrophosphate) for site on coenzyme free carboxylase in the decarboxylation of pyruvate. Captan mainly acts as protectant, but in some cases it is claimed to have acted systemically. It is not commercially effective against rusts, powdery mildew and downy mildew. It is degraded when exposed to sunlight. It is incompatible with all alkaline materials since it gets decomposed at higher pH. It is incompatible with lime sulphur and Bordeaux mixture. Animals feed with captan treated grains have shown no harmful effects.

Thank You