

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

Unit-2

Disease management:

2. Control methods

C. Fungicides

V. Benzene compounds – Dexon

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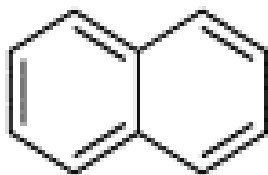
Smt. S. K. Gandhi Arts, Amolak Science and P.H. Gandhi

Commerce College, Kada Dist. Beed

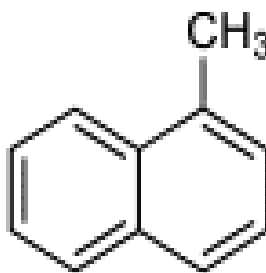
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BENZENE COMPOUNDS: DEXON

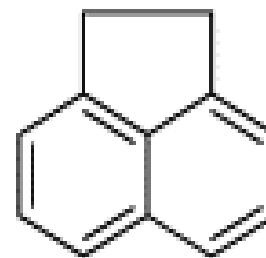
Chemically Dexon is sodium p-dimethylaminobenzene-diazosulphonate. Its structural formula is:



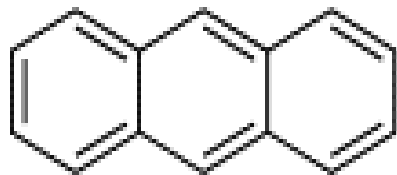
Naphthalene



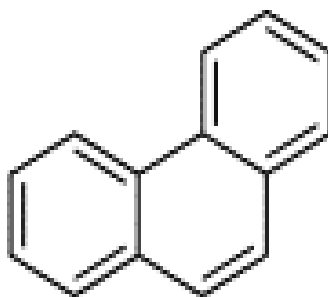
1-Methylnaphthalene



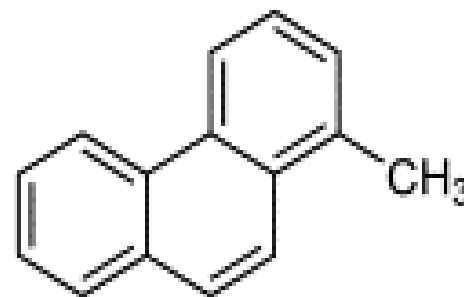
Acenaphthene



Anthracene



Phenanthrene



1-Methylphenanthrene

Its empirical formula is $\text{C}_8\text{H}_{10}\text{N}_3\text{NaSO}_3$ and the molecular weight is 209. It is an odourless, yellowish powder. It is 2 to 3% soluble in water, soluble in ethanol and methanol, but insoluble in benzene and ether. It has an acute oral LD_{50} of 60mg/kg body weight for rats. It is compatible with PCNB. It shows a little phytotoxicity at the recommended rates. At 100 to 200 ppm it has inhibitory to root elongation and nodulation in certain legumes. It is available under the trade name Dexon as a 5% granular and 70% WP formulation.

It is the most promising diazo compound developed for plant disease control. It is fairly specific in protecting germinating seeds and growing plants from seed and soil borne phycomycetes like *Pythium* spp., *Aphanomyces* spp and *Phytophthora* spp. The aqueous solution is not stable in presence of sunlight. It shows no significant effect on the associated saprophytic microflora of soil.

In glasshouse conditions 10 or 20 ppm soil drench per week gave good control of *Phytophthora* root rot of avocado seedlings, while 40 ppm per week application was phytotoxic. Under field conditions, use of 100 ppm dexton suspension at the rate of 1 gal/sq.ft. per month with irrigation water resulted in significant recovery of already infected plants.

It is fungistatic in action. Germination of sporangia, zoospores and chlamydospores of *Phytophthora cinnamomi* was inhibited at 100 to 500 ppm, where as the formation of sporangia and chlamydospores was inhibited effectively at as low as 5 to 10 ppm concentrations.

It is recommended and used as seed treatment with PCNB for sugarbeets and cotton seed and also as soil drench at 30 to 100 ppm at planting.

In sensitive fungi it inhibits respiration. In the mitochondria of *Pythium* it inhibits oxidation of nicotinamide adenine dinucleotide (NADH₂).

Thank You