

A NOTE ON DIHYDROINDOLE PHENYL HYDRAZONE (DIPH)—A NEW HETEROAUXIN

RECENTLY Sarma and Barooah¹ have reported the formation of a new dihydroindole phenyl hydrazone (I) during the diazo coupling of indole with a diazonium chloride obtained from *o*-amino thio anisole. Since the early synthesis of indole acetic acid (IAA) involved the diazo coupling of benzene diazonium chloride with diethyl- α -acetyl glutarate² this new compound was tested for auxinal properties. It showed positive root initiation and development activity when applied to the terminal cuttings of tomato, dahlia, juniperus and thuja. In this note the auxinal activity of the new compound (DIPH) is reported.

Diazo coupling of indole with the diazonium salt obtained from *o*-amino thio anisole was carried out by the method of Avrameonko, Nagina and Suvorov³. The pH of the solution was restricted to 5. The resulting precipitate was chromatographed on a column of alumina using benzene as eluent. The structure of the main compound obtained, was elucidated by u.v., i.r. and p.m.r. spectral analysis and confirmed by elemental analysis. The structure corresponds to a dihydroindole phenyl hydrazone (Fig. 1).

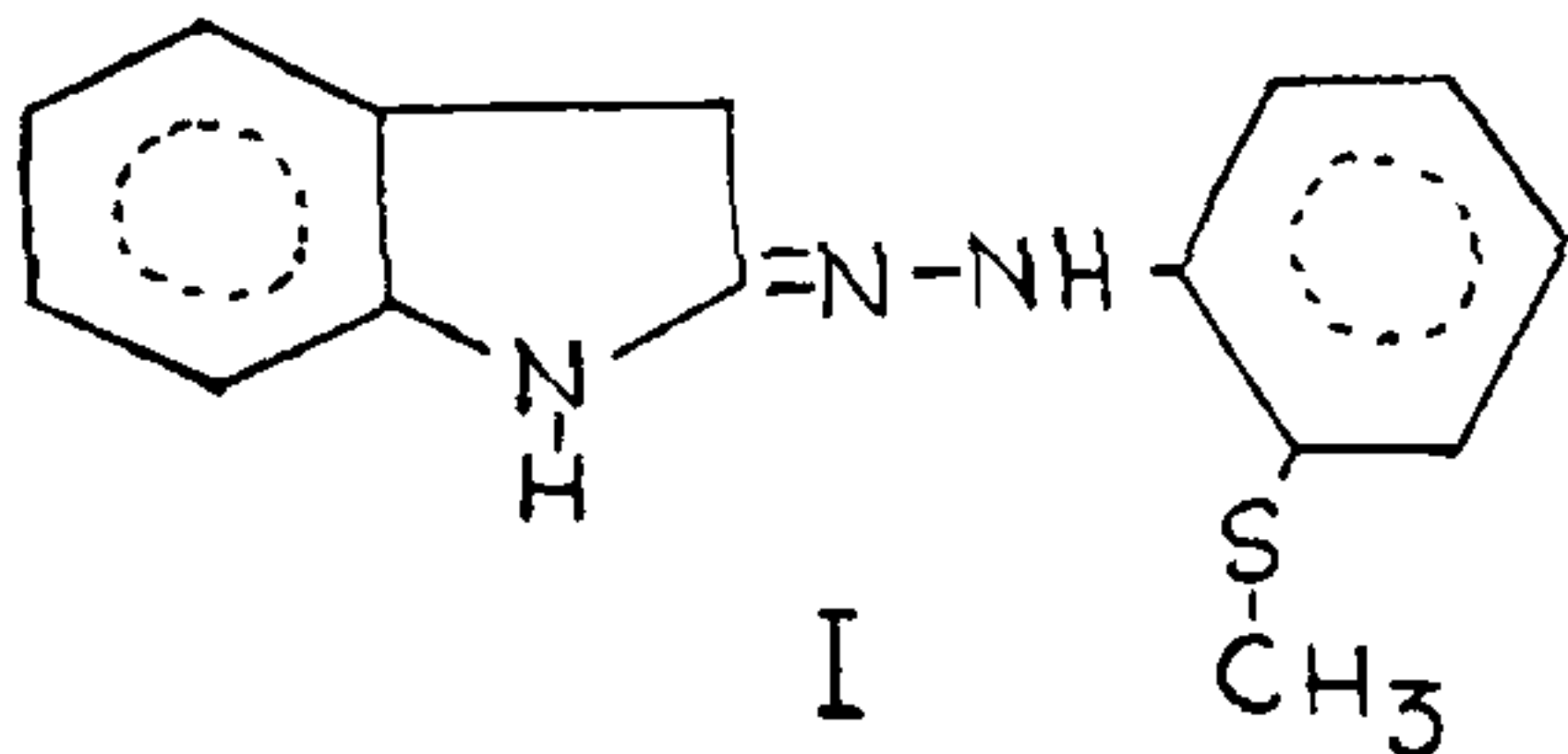


FIG. 1

For determining auxinal activity, terminal cuttings of tomato, dahlia, juniperus and thuja were treated with DIPH by the soaking method⁴ at 250 ppm. The results are recorded in Table I.

TABLE I
No. of Samples treated 10.

Plant Cutting	% rooting	Mean length in cm.	Auxin used
Tomato	90	7.2	IBA
Dahlia	70	5.7	do.
Thuja	20	5.2	do.
Juniperus	30	3.5	do.
Tomato	60	9.7	DIPH
Dahlia	50	10.2	do.
Thuja	20	4.5	do.
Juniperus	50	5.7	do.

N.B.—Untreated cuttings failed to produce roots.

It is clear from Table I that DIPH has auxinal activity on the development of roots in cuttings. Although IBA induced a larger number of roots than DIPH their length did not exceed those produced by treatment with DIPH.

It has been reported⁵⁻¹⁰ that the auxinal activity of indole acids is due to an indole acid phenol complex which forms at the base of the cuttings. The phenol fragment being produced by the plant itself.

Experimental

Preparation of DIPH.—0.7 g of *o*-aminophenyl methyl sulphide hydrochloride was dissolved in 20.0 ml water and 0.5 ml conc. HCl. To it 0.35 g of a saturated solution of sodium nitrite was added at 0°C and allowed to stand for 15 min. This diazo solution was added drop by drop into a well stirred suspension of 0.59 g of indole in 50.0 ml. of water containing 0.05 g NaOH and 0.5 g of Na₂CO₃. The temperature was maintained at 0°C and the addition was completed within one hour. Stirring was continued for one hour more until coupling was complete. The solid obtained was filtered, dried and column chromatographed over alumina using benzene as eluent (Yield 0.52 g; m.p. 192°C).

Application of DIPH.—The basal end of cuttings was treated with DIPH at 250 ppm for 24 hr. After treatment the cuttings were inserted into rooting medium immediately. Direct sunlight was avoided to prevent wilting.

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