Studies on the basidial formation by Sclerotium rolfsii Sacc.-IV. Development of basidial stage of S. rolfsii isolates from Colocasia and groudnut on a new medium

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Several cultural media to induce basidial formation by *Sclerotium rolfsii* Sacc. isolates, from potato, *Colocasia* and groundnut, had been tried earlier by the authors (Series II & III, 1965). In this paper it is proposed to give the details of another medium on which this stage was obtained by the two isolates of *S. rolfsii* from *Colocasia* and groundnut (*Arachis hypogea* L.).

The isolates of *S. rolfsii* were obtained from the wilt affected specimens of *Colocasia* and groundnut and their pathogenicity was proved. The medium which induced basidial formation by these isolates was as under: —

Cohn's agar was used as a basal medium but its sugar content was reduced by 25%. To this medium, as suggested by Mathew (1954), vitamins were added seperately viz. pyridoxin (a) 250 mg., nicotinic acid-(a) 250 mg., pontothenic acid-(a) 250 mg., ascorbic acid-(a) 250 mg., vidahlyn (vitamins A B C D) -(a) 100 mg. and trigol (wheat germ oilvitamin E)-(a) 250 mg.

The stock solution was distributed in 100 cc. quantities in 250 cc. Erlenmeyer flasks to which the required quantity of a vitamin was added. The media thus prepared were sterilized at 15 lbs. pressure for 15 minutes, inoculated with a sclerotium and incubated at 30° C. for 7 days and thereafter at room temperature (25°—26° C.) for next 100 days. Observations were recorded after every 10 days. Of these media, the isolates developed the basidial stage after 50 to 60 days in the media containing trigol (vitamin E) only. The basidial production was found on one side of the petri dish in groundnut isolate, while in *Colocasia* isolate, it was at the sub-centre. The growth in both the isolates appeared as white, aerial, velvety, loosely formed and roundish, attaching itself to the growing mycelial strand and measuring 0.5—1 mm. in diameter. In *Colocasia* isolate, it consisted of numerous hymenia with many abortive basidia and few well developed basidia having 1—4 sterigmata. Basidia were club shaped, slender, but not very stout as

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were obtained on the other media reported by the authors in the previous papers (series II and III of 1965.). These measured 20—30 μ × 4—6 μ. Sterigmata were broad at the base and pointed at the tip and measured 3.5—4.0 μ × 1.0—1.5 μ. These were, however, slightly short and thick. Basidiospores measured 5—6 × 2.5—3.5 μ. In groundnut isolate, basidia were also club shaped, slender and scarcely formed as in the *Colocasia* isolate. They measured 20—25 × 3.5—5.0 μ. Sterigmata which varied form 1—4, were shorter but were stout and measured 1.5—3 μ. Basidiospores measured 5—6 × 2.5—3.5 μ.

From the basidiospores, *S. rolfsii* culture having numerous sclerotia was obtained. On basis of the characters of basidia, basidiospores and measurements, the isolates of *S. rolfsii* from *Colocasia* and groundnut can be identified as *Pellicularia rolfsii* West.

Similar results were also obtained when Lewis (1952) basal medium was used. Its sugar content was reduced by 25% and the quantities of trace elements were changed as under: —

Micro-element	dilutions used in the present study mg./l.	dilutions advocated by Lewis mg./l.
Bo — as boric acid	00.01	10.00
Cu — as $CuSO_4$	00.10	10.00
Fe — as $FeCl_3$	00.20	10.00
Mn — as $MnSO_4$	00.02	2.00
Mo — as molybdic acid	00.02	2.00
Zn — as $ZnSO_4$	2.00	2.00

To this basal medium, the quantities of vitamins as reported above were added. Basidial formation, which agreed in all respects with that reported above by both the isolates was obtained in 50 to 60 days in the medium where vitamin E (trigol) only was added. Use of a vitamin in either Cohn's or Lewis' basal medium for inducing the basidial stage of *S. rolfsii* has not been reported so far. This, therefore, appears to be the first report on this. Basidial formation by the groundnut isolate of *S. rolfsii* was reported by Altstatt (1941) only. Similarly, Goto (1930), alone could get basidia of *S. rolfsii* from *Colocasia*. Both these authors obtained this stage on different media. No other worker from India except the authors (series II and III 1965) had so far reported on the basidial formation by *S rolfsii* from groundnut and *Colocasia*.

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