Hence, low levels of alanine, glycine, glutamic acid and accumulation of tyrosine, phenyl alanine (Aromatic aminoacids), proline, cystine, cysteine and serine at higher potash levels enhance the resistance of chilli leaves to *Xanthomonas vesicatoria*.

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PHOMOPSIS ROT DISEASE OF GRAPE

DURING the visit of grape garden of a cultivator at Hyderabad (A.P.), the authors came across the pycnidial fungus growing on grape berries. The incidence of the disease in the garden was significantly high particularly on Anab-e-shahi cultivar and fruit drop was enormous. The characteristic ymptoms of the disease (Fig. 1) is the formation of water soaked lesions on

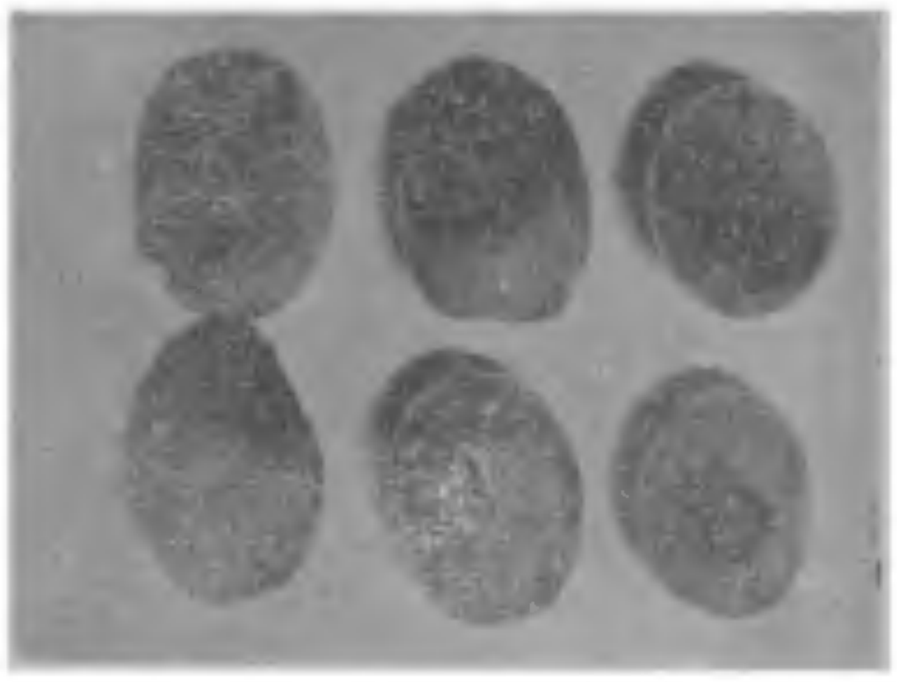

FIG. 1. Grape berries covered with pycnidia of *Phomopsis viticola* Sacc.

the berries which bear a large number of black dot-like pycnidia. Pycnidia initially immersed, becoming erumpent, dark globose to irregular up to 200–350 μm diameter, with protruding ostioles; pycnidial wall multicellular, conidiophores (phialides) hyaline, filiform, arising from innermost layer of cells lining the cavity. A-conidia hyaline, unicellular, fusoid to ellipsoidal, 2-guttulate, rarely 3, measuring 8–10 × 2·5–3 μm. B-conidia very few, hyaline, elongated, filiform, curved, blunt at the base, aseptate, eguttulate, measuring 20–30 × 1–1·5 μm. Both types of spores are exuded from the pycnidium in a thick, water-soluble matrix. The host epidermis surrounding the erumpent black pycnidia becomes darkened.

In culture, the fungus forms a whitish mat of creeping hyphae on the agar surface with little or no aerial mycelium and later turns as smoky-gray. Pycnidia are formed on tenth day; they are sometimes scattered singly over the surface but more generally coalesced to form large, black multiostiolate bodies.

Pathogenicity tests were conducted with the pure cultures of the fungus by applying the culture on healthy grape berries with or without wounds. The infection started early in the wounded tissue though ultimately there was no difference in wounded or unwounded ones. Typical lesions of the disease were observed on the seventh day which gradually increased in size. Reisolations from the diseased tissues yielded the same fungus.

The fungus has been identified as *Phomopsis viticola* Sacc. Hewitt[1] reported in California (U.S.A.) that the fungus responsible for *Phomopsis* rot and dead-arm of grape is the same and the fungus grows from the stems into the grape and causes rotting. However, *Phomopsis* rot disease has not been reported on grape so far from India.

The culture and the specimen have been deposited in the P.K.V. Plant Pathology Herbarium by PKV PP 103 number.

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RARE AXILLARY BRANCHING IN *PHOENIX SYLVESTRIS* (L.)

THE genus *Phoenix* consists of a few unbranched species, and others with sucker formation (Tomlinson[2]). The present contribution deals with a wild date-palm, *Phoenix sylvestris* (L.) Roxb., with its abnormal axillary branching with bulbils, and the sucker shoots.

The particular wild date-palm, *Phoenix sylvestris*, was located by the authors during their field study.

This palm is about 2 metres tall with crown of pinnate leaves, and the stem bears about 7 abnormal axillary branches at different levels bearing bulbils and 10 radiating sucker shoots at the ground level affording a characteristic "bushy" habit (Fig. 1). Of the rare axillary branches, the uppermost being 2 feet below the crown, the next in order 1 foot below and the rest at different levels.

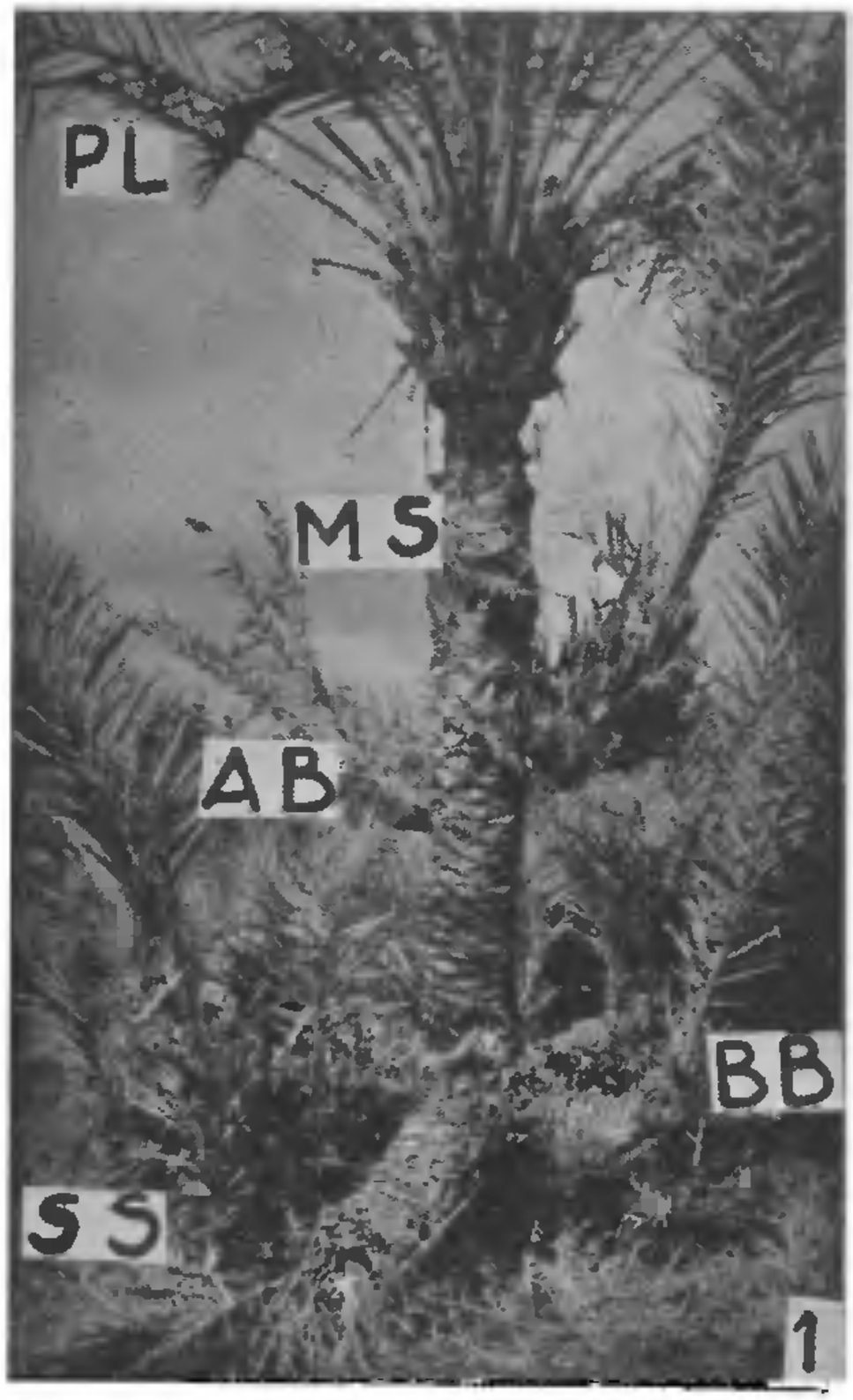

FIG. 1. Plant showing abnormal axillary branching on the main stem with crown of pinnate leaves, sucker shoots and bulbils.

(MS, main stem; AB, Abnormal axillary branches; PL, pinnate leaves; SS, sucker; BB, Bulbil.)

Discussion

The presence of abnormal axillary branching can be correlated to the view of Davis[1] regarding Borassus, where branches appeared when the main stem was about 5 feet tall. In his view, the development of branches at different levels was induced due to the destruction of the apex. But in the recorded species, *Phoenix sylvestris*, axillary branches at different levels characterise the existence of the apical bud of the main stem with crown of leaves. The explanation of Padmanabhan[4] has evinced that axillary shoots survive beyond the stage of a few adult leaves but ultimately dry up. But in the recorded specimen, the axillary branches are found to survive with hard and fast distinction of crown of leaves, persistent leaf bases and a number of adventitious roots. The axillary meristem in *Phoenix* develops regularly in association with almost every leaf in the adult palm. After initiation, the axillary apices appear to remain quiescent until the time of flowering when stimulus reaches them (Padmanabhan[4]). The further development of axillary meristem into shoots may be due to external or internal unknown stimuli (Davis[2]). This commitment of rare axillary branching as to its real cause deserves further study.

The term bulbil is applied here to designate a condensed leafy shoot. Such bulbils have been already recorded in *P. loureirii* (Padmanabhan[4]). A number of bulbils were crowned at the rare axillary branches and on the suckers too in *P. sylvestris*, showing transition from simple to pinnate leaves. The number of leaves in a bulbil varied from 5–15. It was observed that the first formed leaves had a few number of leaflets.

Suckers—the lateral branches at the ground level were already recorded in *P. loureirii* and *P. farinifera* (Padmanabhan[4]). These structures were recorded in *P. sylvestris* too and curiously enough they, numbering about 10, radiate the base of the main stem. The suckers in their turn develop a number of bulbils and adventitious roots from the persistent leaf bases. It is noteworthy to observe the frequent occurrence of secondary suckers from the primary suckers making a clustered appearance of shoots at the base of the main stem.

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