

Table 1 Cultivars of the different grain legume crops tested for rooting in excised leaves

Crop	Cultivars
Soybean	Monetta, PK-472, CO-1, Macs-13
Chick pea	Chaffa
Groundnut	JL-24, TG-17, TG-9, SB-11, Robut
Black gram	TAU-1, T-9, LBG-17
Pigeon pea	TT-5, TT-6, TAT-10

cotton plugs. These plastic sheets with leaves were placed over enamel trays containing tap-water so that the lower 2 cm of the petiole was always immersed¹. The trays were kept in a growth chamber maintained at 21°C, 24°C or 28 ± 1°C, with a 12 h/day illumination of 4136 lux.

At 21°C root initiation was observed in soybean and chick pea after 9–12 days and in groundnut and pigeon pea after 15–18 days (figure 1). The rooted

ROOTING OF EXCISED LEAVES OF GRAIN LEGUME CROPS

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As reported previously¹ excised leaves of mungbean cultured in water developed roots without any application of plant growth regulators (PGRs). They could be maintained for up to 40 days. This simple technique has been found useful in screening for powdery mildew reaction under controlled environment and is now routinely used in our laboratory. The usefulness of this technique for screening for other foliar diseases is being assessed. This communication reports similar rooting in cultured excised leaves of other grain legume crops, particularly in pigeon pea (*Cajanus cajan* (L.) Millsp.), soybean (*Glycine max* (L.) Merr), chick pea (*Cicer arietinum* L.) and groundnut (*Arachis hypogaea* L.). Rooting in excised leaves of groundnut and soybean has been reported previously^{2,3}. In soybean PGRs were used for rooting. However, PGRs are reported to alter disease reaction of barley leaves⁴ and it would be desirable to avoid their use in experiments aimed at studying host-pathogen interactions.

Leaves from field-grown plants of pigeon pea, chick pea, soybean, groundnut and black gram cultivars were used (table 1). The third leaf from the base of 25-day-old seedlings was excised above the pulvinus and inserted through a series of holes in opaque plastic sheets and held in position with

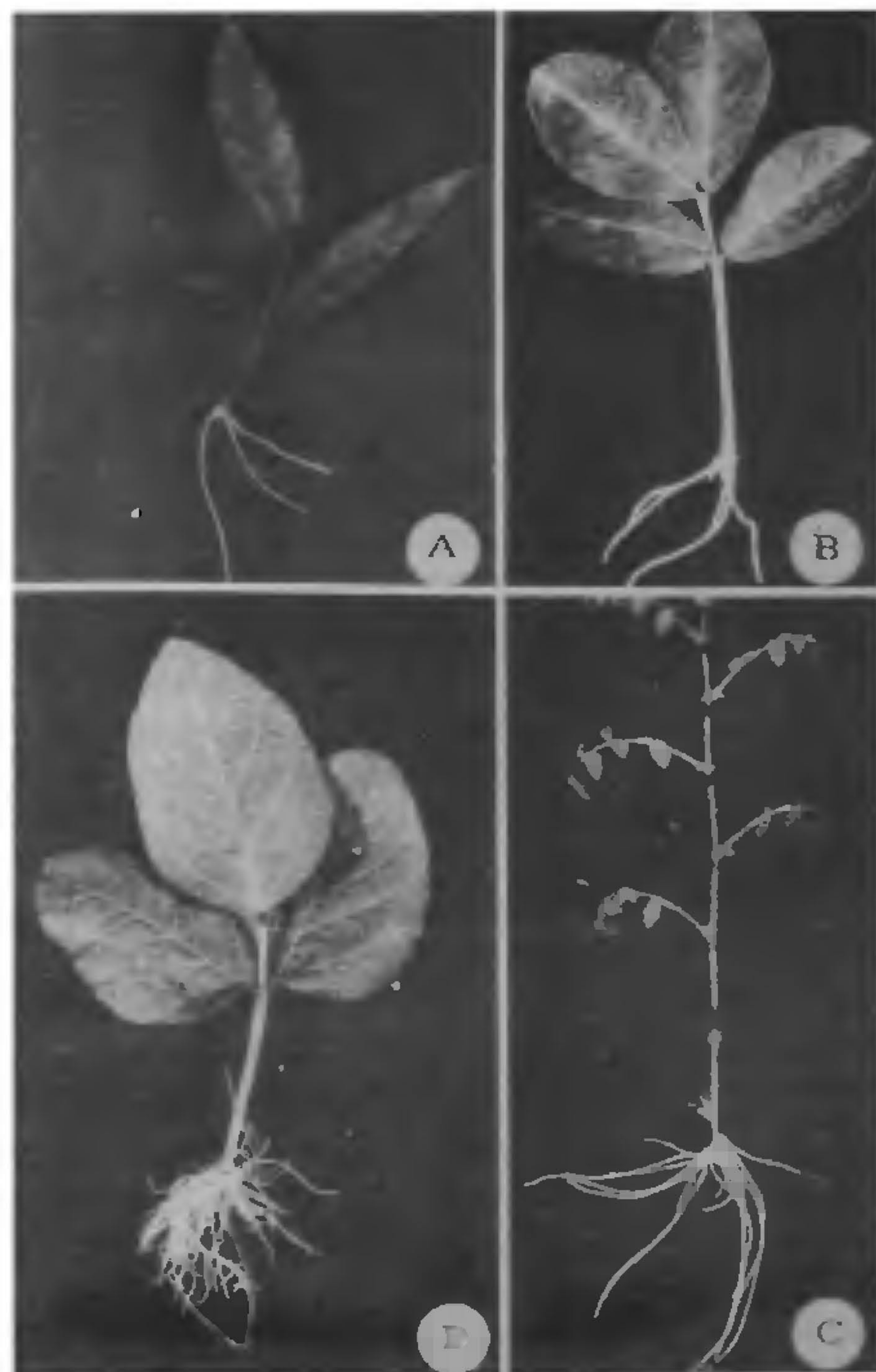


Figure 1. Excised leaves of pigeon pea (A), groundnut (B), chick pea (C), and soybean (D), showing profuse rooting from the basal region of petioles.

Table 2 Excised leaf culture of different grain legume crops at $21 \pm 1^\circ\text{C}$

Crop	No of leaves cultured	Rooting and survival up to 40 days
Soybean	140	140
Chick pea	140	140
Groundnut	140	140
Black gram	140	136*
Pigeon pea	140	134

*Rooting was not observed; excised leaf survival up to 30 days.

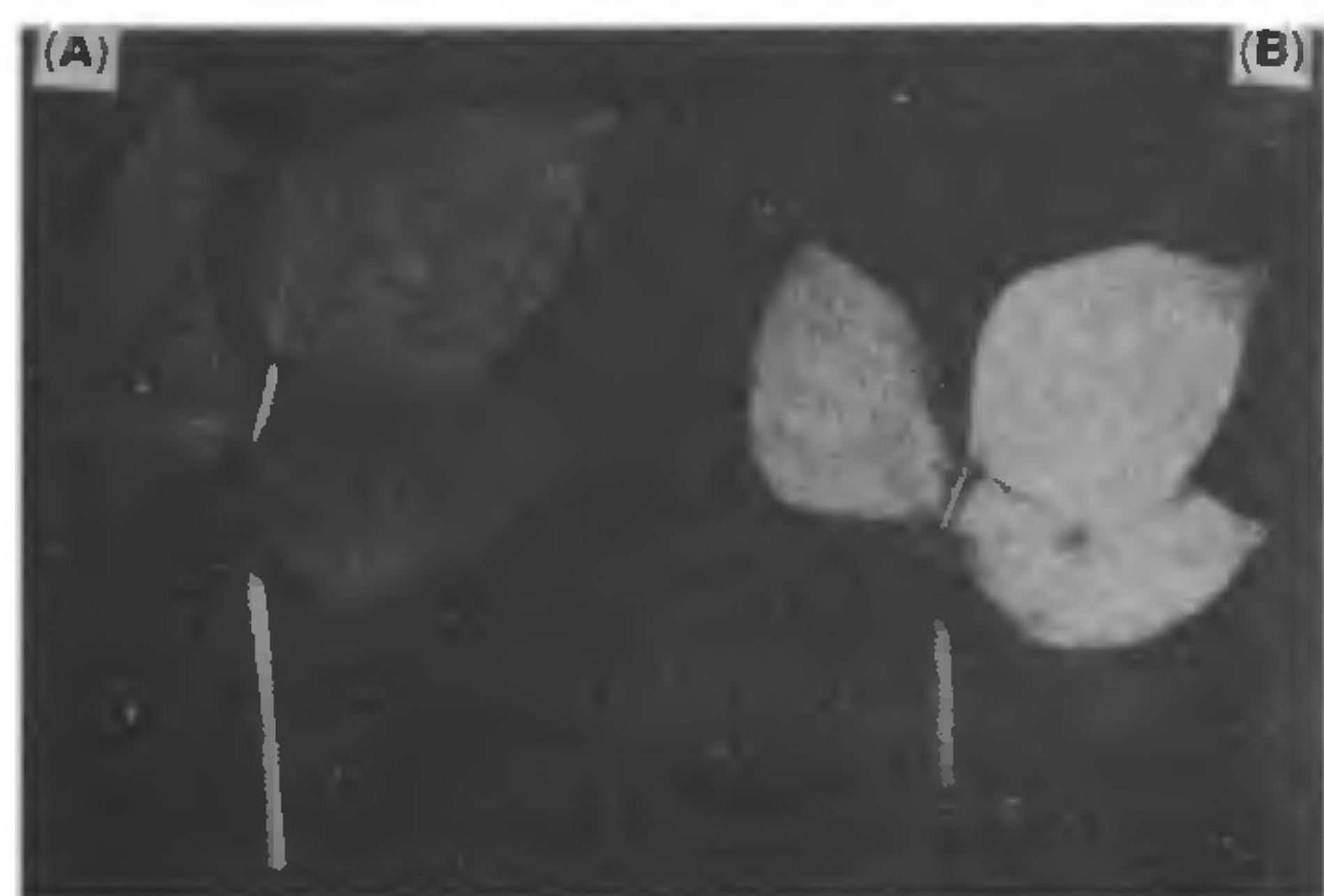


Figure 2. Resistant (LBG-17) (A) and susceptible (T-9) (B) reaction to *Erysiphe polygoni* DC. on excised leaves of *Vigna mungo* (L.) Hepper 16 days after inoculation; distinct disease lesions are seen in the susceptible type (B).

leaves could be maintained for up to 40 days, with 100% survival in soybean, chick pea and groundnut and 96% in pigeon pea (table 2). Though there was no rooting in black gram, 97% of leaves could be maintained for up to 30 days. This period was found adequate for screening for powdery mildew reaction (figure 2). At 24°C all the excised leaves survived in groundnut and chick pea, but survival was 85%, 89% and 90% in pigeon pea, soybean and black gram respectively. At 28°C survival of excised leaves of chick pea, groundnut, soybean, pigeon pea and black gram was reduced to 44%, 31%, 19%, 12% and 8% respectively. The study shows that cultured excised leaves would be ideal for evaluation of plants for foliar disease reactions under controlled environment.

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