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Short Communication

PERFORMANCE OF SOME KIWI FRUIT CULTIVARS UNDER MID HILL CONDITIONS OF HIMACHAL PRADESH

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Kiwifruit (*Actinidia deliciosa* var. *deliciosa*) is native to China and the centre of origin of the genus is in the mountain ranges of Southwestern China (Ferguson, 1984). In India, the plants were first grown in Bangalore where it did not fruit, but the plants introduced in Shimla by National Bureau of Plant Genetic Resources (then Plant Introduction Division, IARI) started bearing in 1969 (Dadlani *et al.*, 1971). Subsequently on the basis of its performance at Shimla, which was found very encouraging for its cultivation in the lower and mid hills of Himachal Pradesh, the present study was conducted to evaluate the performance of some Kiwifruit cultivars under Solan conditions.

The experiment was laid out in Randomized Block Design replicated 4 times. Twenty fruits were taken from each cultivar viz. *Abbot, Allison, Bruno, Hayward* and *Monty* which were subjected to physico-chemical analysis. Fruit weight, volume and size were measured with top pan balance, water displacement method and Vernier calliper, respectively. Seed extraction was done manually. Fruit firmness was noted with Magness-Taylor pressure tester. Titratable acidity, sugars and ascorbic acid were determined as per the method of A.O.A.C. (1980). Total soluble solid content was recorded by Erma Hand refractometer (0-32° Brix).

Fruit shape of different cultivars is given in Fig. 1-5. All the physical characteristics of fruits differed significantly in respect to their parental material (Table 1). *Hayward* cultivarproduced the largest fruit (65.10g) followed by *Abbot* (55.47 g) and lowest with *Monty* (39.20g). Fruit size in terms of length X diameter followed the same trend like fruit weight and smallest (5.60 × 3.96 cm) and largest (7.33 × 5.01 cm) size of fruit was recorded with *Monty* and *Hayward,* respectively. The specific gravity for the respective cultivars were noted as 41.25 and 87.25 cc/fruit. The highest number of seeds per fruit

(730.02) was noted with *Allison* and lowest (179.0) with *Monty* while weight of 100 seeds was higher in Abbot (181.50mg) than the other cultivars studied. The fruits of *Hayward* were quite hard with their flesh firmness value of 10.21 kg/cm^2 and were statistically *at par* with *Mont* (10.20 kg/cm^2) and *Abbot* (9.67 kg/cm^2) while *Allison* produced the most soft fruit (8.78 kg/cm^2) at the time of commercial picking.

Table 1. Physical characteristics of kiwifruit Cultivars

Cultvars	Fruit weight (g/fruit)	Fruit Volume (cc/fruit)	Fruit size		No. of seeds/ fruit	Weight of 100 seeds (mg)	Fruit firmness (kg/cm^2)
			Length (cm)	diameter (cm)			
Abbot	55.47	57.50	6.34	4.35	501.00	181.5	9.67
Allison	44.17	71.25	7.58	4.37	730.20	175.00	8.78
Bruno	50.10	58.25	6.88	3.80	529.70	162.70	9.05
Hayward	65.10	87.25	7.33	5.01	675.20	157.00	10.21
Monty	39.20	41.25	5.60	3.96	179.70	144.00	10.20
CD (0.05)	3.80	6.65	1.71	0.43	64.93	24.19	0.56

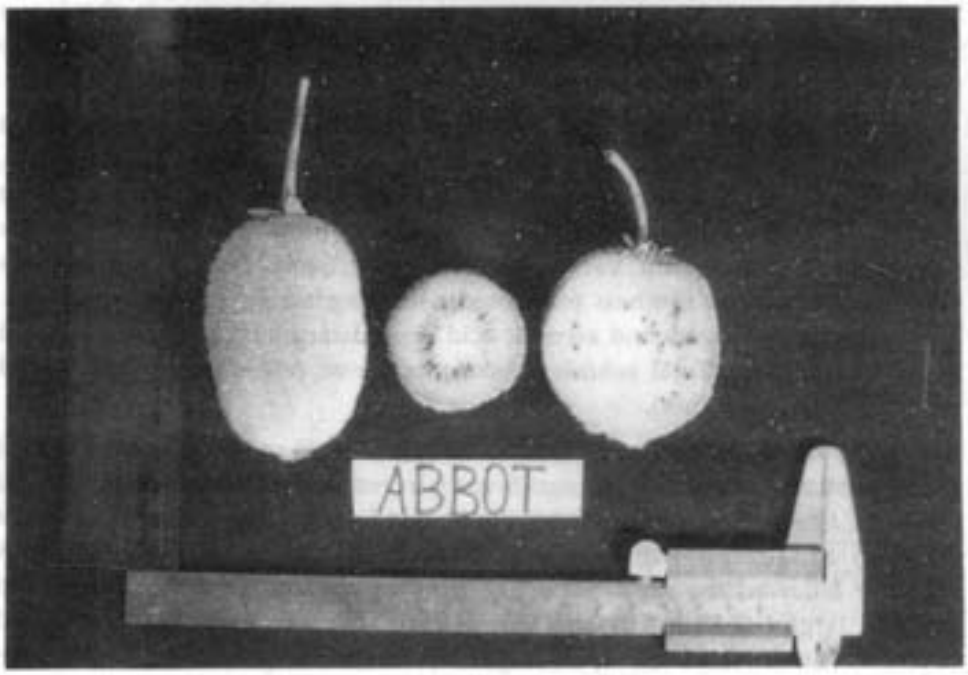

Fig. 1. Abbot

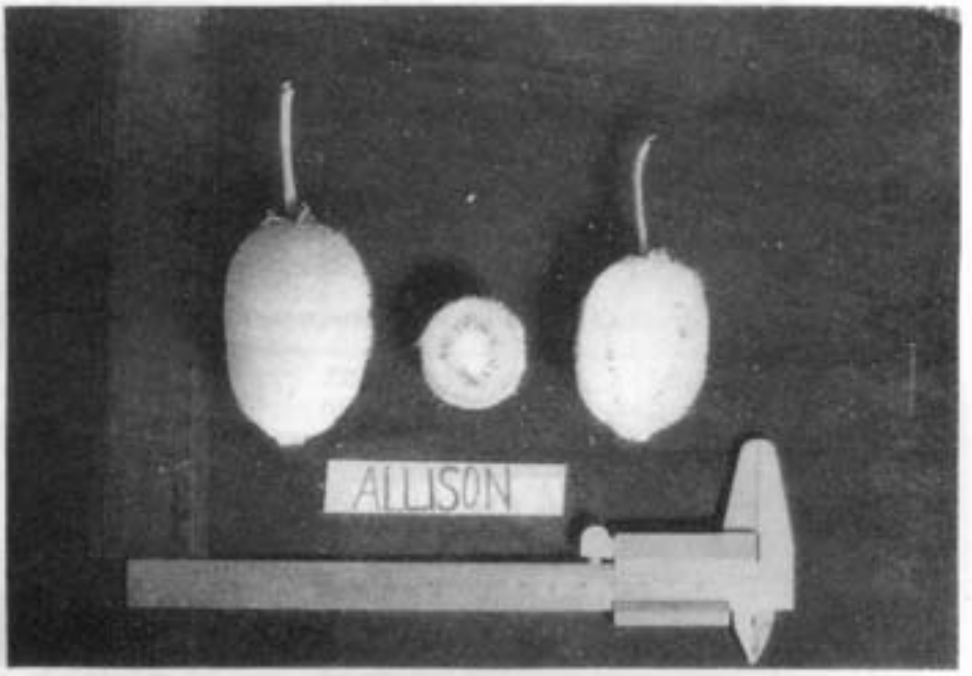

Fig. 2. Allison

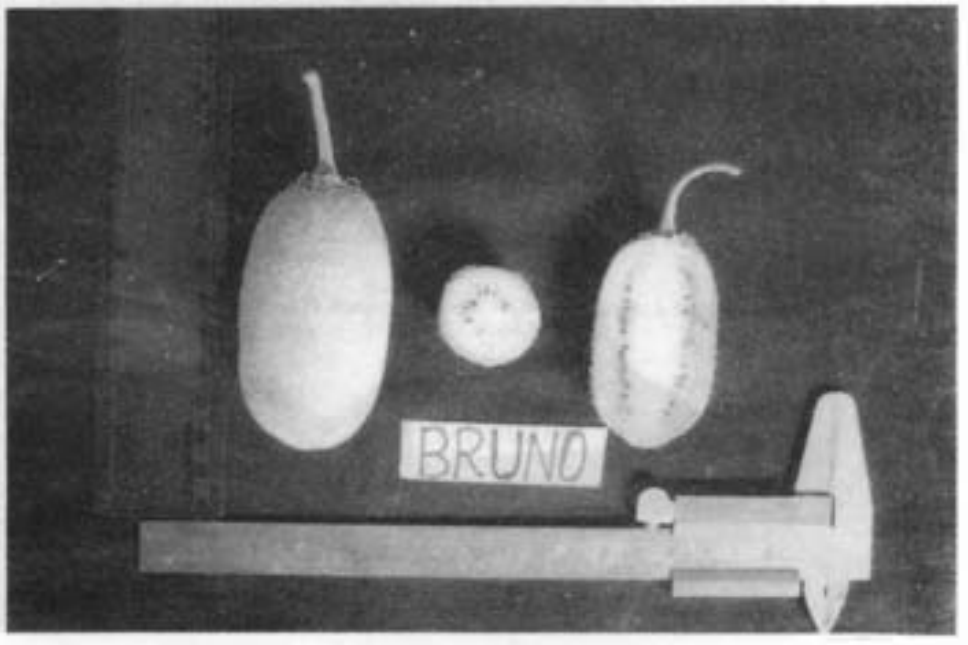

Fig. 3. Bruno

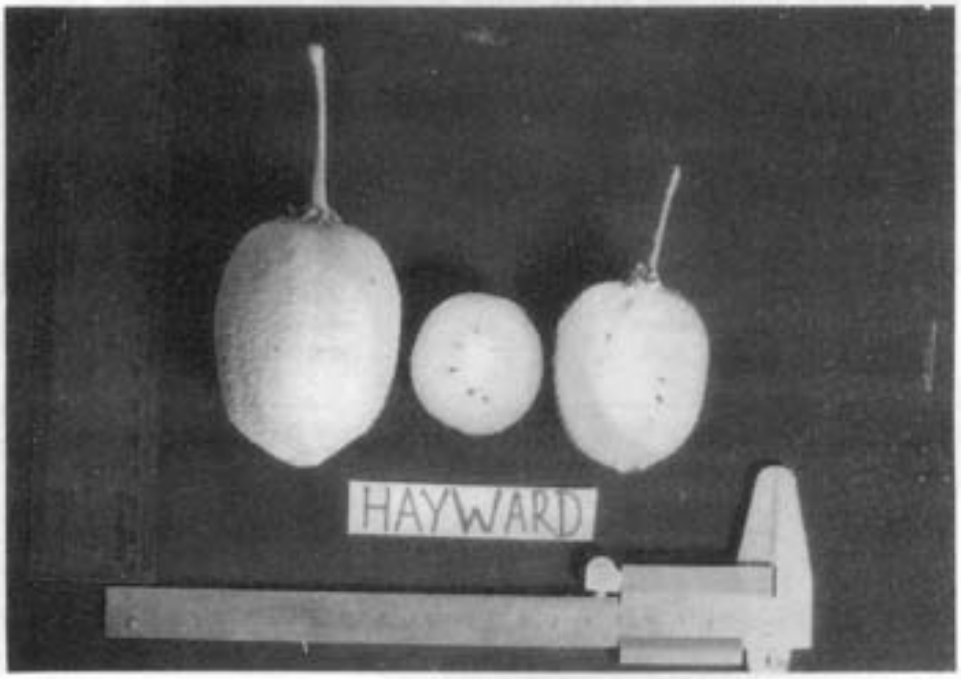

Fig. 4. Hayward

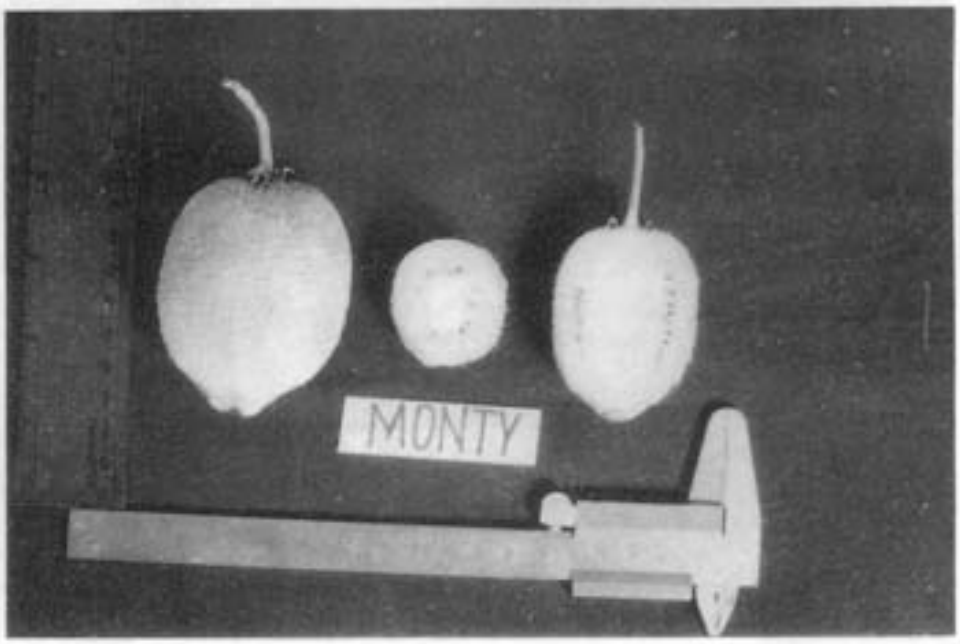

Fig. 5. Monty

The fruits of various cultivars differed significantly for their chemical characteristics as given in Table 2. The fruits of *Bruno* had the highest acid contents (1.80%) while *Abbot* showed the lowest value for the content of acids (1.22%). The total soluble solid contents of fruits was significantly highest in the fruits of *Bruno* (11.42° B) while rest of four cultivars were found statistically *at par* in relation to their fruit TSS contents.

The lowest and highest contents of reducing sugar were noted with *Bruno* (1.8%) and *Allison* (4.77) respectively. The corresponding values for total sugars

Table 2. Chemical Characteristics of Kiwifruit Cultivars

Cultivar	Titratable acidity (%)	TSS (oB)	Reducing sugars (%)	Total sugars (%)	Ascorbic Acid (mg/100g fresh weight)
Abbot	1.22	6.45	2.46	2.57	65.77
Allison	1.32	6.40	4.77	4.98	47.50
Bruno	1.80	11.42	1.84	1.94	129.80
Hayward	1.45	6.35	2.53	2.79	52.25
Monty	1.41	6.55	2.18	2.56	49.50
CD (0.05)	0.14	0.70	0.37	0.33	6.22

were noted as 1.94 and 4.98% for *Bruno* and *Allison* respectively. The ascorbic acid content was significantly highest in *Bruno* (129.80 mg/100g fresh weight) as compared to other cultivars studied during experimentations.

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