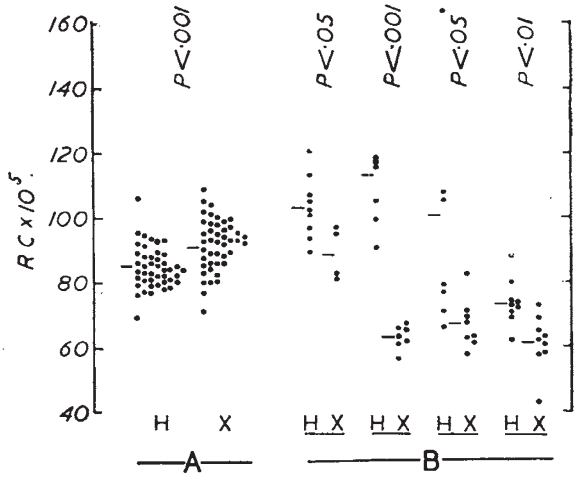

Frequency distribution of values of *R.C* for Up-to-date potato tubers. *H*, healthy tubers; *X*, tubers infected with virus *X*. *R* is measured in ohms; *C* in pfd. The batch means are indicated by horizontal lines

Leaf roll. Similar measurements were made on tubers with primary leaf roll infection. In this case, the healthy and diseased batches came from the same clone.

The 1950 measurements were made on tubers stored for about twenty weeks, the 1951 measurements on tubers stored for about nine weeks. The internal measurements were made on halves obtained by cutting the tuber at right angles to the long axis; the vascular ring measurements were made with the probe points straddling the vascular tissue.

The accompanying table summarizes the results obtained. It will be seen that for some varieties there were significant differences between diseased and healthy batches, whereas for other varieties the differences were not significant. This dissimilarity between certain varieties is not surprising, as varieties differ in their physiological response to leaf roll. It will be noted that in clone 47–20 there is a discrepancy as regards the differences between the rose end measurements for the 1950 and 1951 series. This discrepancy is somewhat similar to that already noted for virus *X*, between the *A* and *B* series in the diagram.

There was no significant difference between mean values for corresponding 47–20 batches grown in different soils at the Dickson Experiment Station and at Black Mountain (four miles apart).

Variety	Year	Portion	*R.C*	Signif.	Impedance	Signif.
84–7	1950	Stem end	$H > V$	n.s.	$H < V$	n.s.
,,	,,	Rose ,,	$H > V$	$< 0{\cdot}01$	$H > V$	n.s.
47–20 (Dickson)	,,	Stem ,,	$H < V$	$< 0{\cdot}01$	$H < V$	$< 0{\cdot}001$
,,	,,	Rose ,,	$H > V$	n.s.	$H < V$	$< 0{\cdot}001$
47–20 (Black Mt.)	1951	,, ,,	$H < V$	$< 0{\cdot}01$	—	—
47–20 (Dickson)	,,	,, ,,	$H < V$	$< 0{\cdot}001$	—	—
Katahdin	,,	,, ,,	$H > V$	n.s.	—	—
Sequoia	,,	,, ,,	$H < V$	n.s.	—	—
Sebago	,,	,, ,,	$H > V$	n.s.	—	—
Up-to-date	,,	,, ,,	$H < V$	$< 0{\cdot}01$	—	—
,,	,,	Stem ,,*	$H < V$	n.s.	—	—
,,	,,	Vasc. ring*	$H > V$	n.s.	—	—
,,	,,	Medulla*	$H < V$	n.s.	—	—

* Measurements made six weeks after rose end measurements. *H* represents mean value for healthy batch, *V* mean value for leaf roll batch.

We are continuing these investigations using the same clones for the healthy and diseased batches, to determine how the impedance and phase angle change with maturity. Measurements are being made over a wide frequency-range, and it is hoped from these to explain the differences between healthy and diseased batches and obtain further knowledge of the action of virus diseases on tissues.

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Naphthoquinones from *Diospyros hebecarpa*

Diospyros hebecarpa A. Cunn. is a small or medium tree which is common on the tropical coast of Queensland and has been suspected of poisoning livestock[1]. As other *Diospyros* species are reported to contain plumbagin[2], it seemed possible that this is the toxic substance in *D. hebecarpa*. We have found that plumbagin is present in the leaves and bark of this species, and in addition we have isolated from the fresh leaves and immature fruits a new colourless crystalline compound, melting point 112–113° C., with the composition $C_{11}H_{10}O_3$. In chemical properties and absorption spectrum this substance closely resembles β-hydrojuglone and β-hydroplumbagin, which are also colourless when pure. On oxidation with ferric chloride it gives a quinone, melting point 125–126° C. ('Pyrex'), which is an isomer of plumbagin. (This quinone melts with decomposition at a much lower temperature in soda glass. Juglone behaves similarly, and its melting point may be raised to 164–165° C. in 'Pyrex' glass.)

With dimethyl sulphate and alkali the natural product gives a trimethyl ether, melting point 112–113° C., which does not depress the melting point of a synthetic sample of 2-methyl-4,5,8-trimethoxynaphthalene. The new quinone is evidently 7-methyljuglone, and it is noteworthy that the structural features of this compound are found in several naturally occurring anthraquinones.

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