

Abstract of Demonstration No. 189 at the Xth International

Botanical Congress 1964, Edinburgh Scotland

Natural Kinins from Various Fruitlets and their

Effect on Different Callus Cultures

In Vitro

by

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Peach fruitlets were found in 1960 to be a good source for a highly active natural kinin. Tobacco pith, olive and apple callus were grown in vitro on a nutrient medium containing IAA and the tested extract in the absence of synthetic kinetin. Activity was determined by measuring fresh and dry weight of the tissues as compared to controls with and without kinetin. The active fraction was extractable both in cold and warm ethanol and water, but not in aqueous acid and base. The active material was heat stable. Autoclavization of the fruit before extraction did not cause an evident increase in activity due to possible changes in DNA. The natural kinin was found to have a somewhat smaller Rf value (ca 0.7) than kinetin (ca 0.8). The activity of the extract on tobacco callus was more than double that of kinetin. Olive callus also grew more readily on the extract while apple callus benefited more from the synthetic kinetin. Subsequently fruitlets of 3 stone fruits (almond, apricot, peach) 3 pome fruits (apple, pear, quince), grapes and olives were extracted in the cold ethanol method and activity compared. The pome fruit extracts were generally slightly less active than those from stone fruit (Table 1). Grape and olive extracts had a markedly weaker effect, in the latter it appears due to interfering substances. The almond extract was especially active in inducing bud formation on tobacco callus in the presence of synthetic kinetin.

Table 1

Growth of Tobacco Callus (three-year-old strain) Four Weeks After
Planting on 2l - MW Medium Containing Tested Extracts. (Extracts
equivalent to 1250 mg. F.Wt. fruitlets per 100 ml. medium; results
in average F.Wt per tissue).

Extract Growth Regulator	Apple	Pear	Quince	Grape	Control 0	Almond	Apricot	Peach
0	82	126	107	41	107	106	101	218
IAA	1784	2416	2232	612	379	2746	2472	3310
Kin	161	556	408	262	294	351	128	618
IAA+Kin	1501	1640	2205	783	1083	2448	2121	1515

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