

AVOCADO IMPROVEMENT THROUGH DETECTION AND ELIMINATION OF VIRUSES FROM SELECTED ROOTSTOCK AND SCION VARIETIES

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Work has been re-activated to determine if any of the three types of double-stranded RNA previously detected alone and in various combinations in avocado have a viral origin.

The avocado increase block in field IDE at UCR has been re-examined for the virus-like dsRNAs in individual trees. Trees with only dsRNA 1, dsRNA 2 or dsRNA 3 have been identified and tissue from them has been used as a starting point for the purification of microgram quantities of each of the 3 dsRNA types. The purified dsRNA has been analyzed by polyacrylamide and agarose gel electrophoresis. DsRNA 1 was readily identified by both methods, and was additionally purified from a preparative agarose gels. This dsRNA is now ready to be used as a template from which to clone cDNAs with sequence similarity to dsRNA 1 which will be used to develop a rapid dot-spot hybridization assay for this dsRNA. Similar work with dsRNA 2 and dsRNA 3 has not been so straightforward because detection of this dsRNA by preparative agarose gel electrophoresis is difficult for reasons not yet understood. Work is in progress to address this problem.

Ten individual trees in the increase block have been selected as a source of only one dsRNA type and seed was collected from each tree. Seedlings are now growing from these seeds and they will be tested soon for the presence of dsRNAs. Results will be compared with results for the parent tree. It is hoped that individual seedlings will be found that lack the dsRNA in the parent. Any found to be dsRNA-free will have little if any commercial value because they will have been grown from seed. Such individuals will be invaluable for future experiments aimed at re-analyzing graft and mechanical transmission of all three putative virus-like agents. How virus-like each of the 3 agents is will become more clear when results of such experiments are obtained.

Plants of avocado relatives have been obtained and these will be tested for dsRNA content. Any found to be free of dsRNAs will be added to the plants mentioned above in proposed transmission experiments. It is hoped that some relative will be found that has a more sensitive reaction to the virus-like agents than avocado itself.

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Jordan, R., J. A. Dodds, and H. Ohr. 1983. Evidence for virus-like agents in avocado.

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