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A general method for two-dimensional protein electrophoresis of fruit samples

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Abstract

During experiments characterizing and identifying proteins from controlled atmosphere-stored apple and peach fruit, we optimized methods for the extraction and two-dimensional electrophoresis (2-DE) of fruit proteins, using commercially available immobilized pH gradient strips for the first dimension. The method is relatively rapid with minimal handling of small amounts of sample, and has been reproduced successfully for 2-DE of a variety of fruit and plant tissues in our labs. Critical factors for fruit tissues include using acetone precipitation following incubation in a lysis buffer, and a long iso-electric focussing time. We have observed no interference to focussing from such troublesome fruit components as soluble pectins, polyphenolics, or high-acidity fruit, using this protocol. In addition we have used the method with no modification, for a range of fruit tissues including low protein sources (apple and peach flesh), high lipid material (avocado fruit flesh) and high acidity lemon tissue. As the method in our hands is straightforward and robust, we recommend the method for routine 2-DE separations of fruit samples. Published by Elsevier B.V.

Keywords: 2-DE; Varied plant tissues; Rapid extraction; Mini-prep