Identification of Proteins Involved in the Post-harvest Ripening Soursop (Annona muricata L.)

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The soursop (Annona muricata L.) fruit is widely used in the human nutrition because it provides important components for health. In addition, it is a valuable product to Brazilian economy, especially to Northeast region due its high production. However, it is estimated that the post-harvest losses reach 50%, due to the accelerated rate of fruit development and senescence. The aim of this work was to identify proteins involved in the post-harvest ripening of soursop fruit. Fruits in pre-climacteric stage were collected and transferred to ripen at 25 °C up to 8 days. Samples of the fruit pulp were collected at 0, 2, 4, 6 and 8 days post-harvest and used for protein extraction and two dimensional electrophoresis (2D) analyses. The gels were analyzed using the Image Master software to identification of specific or differential spots, as well as determination of their isoelectric points (pIs) and their molecular masses (MM). The MM and pl data were used to found homologous proteins in angiosperms through searches in UniProtKB / Swiss-Prot and UniProtKB / Tremble databases. After 2D gel analyses, 21 specific and 6 differential-expressed spots were selected and the identification to 26 of them was inferred through bioinformatics search. Among identified proteins should be highlighted the ethylene response factor (ERF), peroxidase (POD), cinnamyl-alcohol dehydrogenase (CAD) and proteins involved in the energy metabolism, such as alternative oxidase (AOX) and NADH:ubiquinone oxidoreductase. The data reveal a useful approach for post-harvest biochemical studies as well as a biochemical/molecular strategies to control post-harvest soursop fruit ripening.

Keywords: Ripening, Soursop, Proteins.

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