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The invention refers to plants physiology and biochemistry and may by used in the laboratories for mitochondrions fraction identification.

The method of sunflower mitochondrions fraction identification includes homogenizing the plant material, extracting the mitochondrions fraction of the homogenized medium by the differential centrifugation, washing the mitochondrions in the homogenized cystein free medium. Slurrying of the mitochondrions fraction is executed in a solution containing saccharose and TRIS-HCl buffer. For degradation of the mitochondrions membranes in this solution it is added Triton X-100. The identification of the mitochondrions fraction is executed by the method of chromatography on the sylufolic plates according to appearing of the allomaleic and malic acids zones, formed as a result of mitochondrions enzyms action on the succinic or allomaleic acids accordingly.

The result of the invention consists in simplification, acceleration and reducing the price of the mitochondrions fraction identification method.