



Histological analysis of Bixa orellana L. seeds

DOI

<https://dx.doi.org/10.17504/protocols.io.vzze776>

Victor Carballo-Uicab¹, Yair Cárdenas-Conejo², Alba Vallejo-Cardona³, Margarita Aguilar-Espinosa¹, Jacobo Rodríguez-Campos⁴, Hugo Serrano Posada², José Iberto Narváez Zapata⁵, Renata Rivera-Madrid¹

¹Unidad de Bioquímica y Biología Molecular de Plantas, Centro de Investigación Científica de Yucatán A.C., Mérida, México;

²CONACYT-Universidad de Colima, México;

³Unidad de Biotecnología Médica y Farmacéutica, CONACYT-Centro de Investigación y Asistencia en Tecnología y Diseño del Estado de Jalisco;

⁴Unidad de Servicios Analíticos y Metrológicos del Centro de Investigación y Asistencia en Tecnología y Diseño del Estado de Jalisco;

⁵Centro de Biotecnología Genómica-Instituto Politécnico Nacional, Tamaulipas, México



Victor Carballo

cicy

Create & collaborate more with a free account

Edit and publish protocols, collaborate in communities, share insights through comments, and track progress with run records.

Create free account



DOI: <https://dx.doi.org/10.17504/protocols.io.vzze776>

Protocol Citation: Victor Carballo-Uicab, Yair Cárdenas-Conejo, Alba Vallejo-Cardona, Margarita Aguilar-Espinosa, Jacobo Rodríguez-Campos, Hugo Serrano Posada, José Iberto Narváez Zapata, Renata Rivera-Madrid . Histological analysis of Bixa orellana L. seeds. **protocols.io** <https://dx.doi.org/10.17504/protocols.io.vzze776>

License: This is an open access protocol distributed under the terms of the **Creative Commons Attribution License**, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited



Created: November 29, 2018

Last Modified: November 29, 2018

Protocol Integer ID: 18201

Keywords: bixin, carotenoids, pigment, bixa orellana, histological analysis

Abstract

Histological analysis of *Bixa orellana* L. seeds

Materials

FAA (formalin-acetic acid-alcohol)

alcohol (10, 30, 50, 70, 85, 95, 100 %)

ethanol/histo-clear (3:1, 1:1, 1:3 v/v)

Paraffin

Microtome (Microm GmbH, mod. HM340E, Lab Tech)

Optic microscope (Revelation 111. LW Scientific)



- 1 Seeds were collected and placed in FAA (formalin-acetic acid-alcohol) for  24:00:00 ; FAA penetration was ensured by applying a vacuum for  00:15:00 periods until the seeds sank in the fixation solution. The next day, the seeds were dehydrated in different concentrations of alcohol (10, 30, 50, 70, 85, 95, 100 %) for  01:00:00 in each solution, and then treated with ethanol/histo-clear (3:1, 1:1, 1:3 v/v) for  01:00:00 followed by histo-clear (100 %) (HistoChoice Clearing H2779-1L, Sigma). Accession N4P was selected for this analysis due to its high among of bixin and also because transcriptomes were elaborated using same accession. Several seeds from three plants of N4P (biological replications) were analyzed by triplicate and embedded in paraffin at  60 °C , then placed inside the paraffin blocks, and stored at  4 °C . The paraffin block was cut with a microtome (Microm GmbH, mod. HM340E, Lab Tech) at a thickness of 5 micrometers, the slices were observed using an optic microscope (10× and 100×) (Revelation 111. LW Scientific) and photographs of the seed morphology were obtained