



PULVERIZATION & HOMOGENIZATION OF CARIBBEAN FRUIT FLIES WITH THE PRECELLYS® EVOLUTION

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/ CONTEXT

Caribbean fruit flies (*Anastrepha suspensa*) are considered a pest of commercial fruit. Ionizing radiation is used as a phytosanitary treatment to disinfect fresh commodities of pests, including Caribbean fruit flies. This treatment renders the insects sterile but may leave some alive. Identifying metabolite biomarkers, such as amino acids, for sterility and eventual death could prove helpful in ensuring the safety of commercial produce.

/ MATERIALS

- Precellys® Evolution with Cooling Option Cryolys®
- Precellys® Lysing Kit: CK14 0.5-mL tubes (KT03961-1-203.05)
- Sample: Lyophilized Caribbean fruit flies (5 flies per sample)
- Buffer: 50/50 Acetonitrile/0.3% formic acid

/ PROTOCOL

Whole flies (5 per sample) were lyophilized to dryness and transferred to CK14 0.5-mL tubes. Samples were then pulverized to a fine powder, followed by homogenization in 50/50 acetonitrile/0.3% formic acid.

Pulverization and Homogenization Protocol

Speed: 6800 rpm

Cycle: 3 x 20 s

Break: 15 s

Precellys® Evolution chamber maintained at 4°C with Cryolys®

/ RESULTS

- Pulverization and homogenization of Caribbean fruit flies with the Precellys® Evolution resulted in a uniform extract that cannot be achieved with manual homogenization
- Amino acids were extracted from homogenates with methanol. The methanol supernatant was evaporated and samples were derivatized with a Waters AAA MassTrak kit. Derivatized amino acids were then quantitated by liquid chromatography-mass spectrometry.



Before Grinding

After Grinding

/ CUSTOMER

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/ CONCLUSION

The Precellys® Evolution, combined with the dedicated Lysing Kit, efficiently pulverizes and homogenizes Caribbean fruit flies for metabolomic analysis. This process allows for highly reproducible quantitation of amino acids, by LC-MS, from replicate samples.

03712-810-DU122



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