



**(1R,2S)-GRANDISOIC ACID AS A MALE-SPECIFIC VOLATILE RELEASED BY THE
WEEVIL *Homalinotus coriaceus* (Coleoptera: Curculionidae)**

Sabrina Cruz de Souza^{1*}, João Marcus Rocha Fraga², Daiane Szczerbowski¹, Jacqueline
Aparecida Takahashi¹, Diogo Montes Vidal¹

diogomvidal@gmail.com

¹ Departamento de Química, Universidade Federal de Minas Gerais, Belo Horizonte, MG, Brazil.

² Independent researcher, Itaguaí, RJ, Brazil.

According to the FAO, Brazil is the fourth largest producer of coconut (*Cocos nucifera*) worldwide¹. However, the country still imports these fruits due to losses caused by pathogens and insect pests. *Homalinotus coriaceus* is the most prevalent coleoptera in the southeastern region, where adults bore holes into the floral peduncle, disrupting sap flow and causing the abscission of flowers, fruits, and sometimes entire clusters². Integrating behavioral, biological, and chemical studies for the use of semiochemicals, especially pheromones, offers a complementary approach to cultural and chemical practices, enabling more selective and environmentally sustainable pest management. In this context, the present study aimed to identify the pheromone components of *H. coriaceus* for potential application in integrated pest management programs. Headspace volatile extracts from males and females, obtained via aeration³, revealed two male-specific compounds, which were identified by chromatographic analyses, microderivatizations, and co-injections with synthetic standards using a GC-MS system (EI-Q). The major component was 1-methyl-2-(1-methylethenyl)cyclobutanecarboxylic acid (grandisoic acid), and the minor component was (*E*)-2-(3,3-dimethylcyclohexylidene)acetic acid. Enantioselective gas chromatography confirmed that natural grandisoic acid corresponds to the (1R,2S) stereoisomer. Although these compounds have been reported as aggregation pheromones in other curculionids, this is the first report for *H. coriaceus*. Future bioassays will clarify their role in the species chemical ecology.

Keywords: Gas chromatography, headspace volatiles, pheromones, semiochemicals

Acknowledgments: CNPq (409220/2023-0), CAPES (88887.832340/2023-00), and FAPEMIG (APQ-00590-21).

¹ FAO. Crops and livestock products, 2023.

² Ferreira, J. M. S. *Ciênc Agric*, 8 (1), 2008.

³ Zarbin *et al.* *Quim Nova*, 22 (2), 1999.

