

Researchers analyse 'in vitro' the antitumor effect of several bioactive components of coffee

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Research news

Scientists from the University of Granada and São Paulo State University (Brazil) are studying the role of caffeine and trigonellin compounds, as well as that of chlorogenic acid, on cancerous stem cells

University of Granada (UGR) researcher María Angel García Chaves, a member of the “Advanced Therapies, Differentiation, Regeneration and Cancer” research group, together with the director of the group Juan Antonio Marchal Corrales and his team, have collaborated with the research group led by Luis Fernando Barbisan of São Paulo State University, Brazil, in a study on the bioactive components of coffee with different antitumor properties.



In a literature review recently published in the journal Food Research International, the researchers explain that coffee consumption can reduce the risk of cancer of the digestive tract (oral, oesophageal, gastric, and colorectal) and, in particular, liver cancer. Beverages derived from coffee beans, such as the widely-consumed espresso, among others, have significant historical, cultural and economic importance worldwide.

Such drinks have a rich and varied chemical composition, depending on various factors linked to their cultivation and manufacturing. Caffeine and trigonellin alkaloids, as well as chlorogenic acid (a polyphenol ester), constitute some of the most important bioactive organic compounds in these beverages. They are present at high levels in coffee and have been shown to modulate common molecular targets

directly involved in key characteristics of cancer

The PhD student Ariane Rocha of São Paulo State University is currently on an academic stay at the University of Granada to analyse whether these coffee components are effective against subpopulations of cancer stem cells (CSCs). These are the focus of the research studies led by María Ángel García, Juan Antonio Marchal, and the team working under the UGR 'Doctores Galera y Requena' Chair in Research on Cancer Stem Cells.

Due to the aggressiveness and resistance of these subpopulations to conventional therapies, such as radiotherapy and chemotherapy, the study, characterisation, and search for preventive therapies and specific drugs to combat these CSCs are of great interest in the fight against metastases and repeated episodes of this disease

Professor Juan Antonio Marchal's research group has extensive experience in the subject, reflected in its numerous papers in high-quality publications and research projects in development—experience that Ariane and her Brazilian research colleagues are delighted to draw-upon, as their work continues to investigate whether coffee compounds are active against CSCs and how the mechanisms involved in this beverage can help in the prevention of, and fight against, cancer.



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