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Passion Fruit Seed Extract Constituent Characteristics and Functional Properties

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Introduction

In tropical and subtropical areas, the genus Passiflora L. is widely cultivated. Passiflora edulis Sims, the most common species, is known as 'passion fruit' and is widely used in processed foods as well as eaten raw. The pulp of P. edulis fruits is consumed along with the seeds; however, when used in processed foods, the seeds are frequently discarded. P. edulis seeds contain a wide range of nutrients and functional components, making their industrial use advantageous in terms of waste reduction. The constituents of P. edulis and their physiological functions have been studied in the past. Seeds of P. edulis contain a variety of polyphenols, particularly those high in stilbenes (e.g., piceatannol). Seed extracts and isolated compounds from P. edulis seeds have been shown to have a variety of physiological effects.

With approximately 520 species distributed throughout the tropics of America, Asia, and Africa, the genus Passiflora L. is a highly diverse plant family. More than 90% of Passiflora species are found in the Americas; however, they can also be found in India, China, Southeast Asia, Australia, the Pacific Islands, and other nearby areas. The fruits of Passiflora are mostly berries with a few pulpy capsules that vary in colour and shape. Most species' fruits

are edible, but only five or six species are economically significant. The passion fruit is Passiflora edulis Sims, and the most widely cultivated species are yellow passion fruit (P. edulis f. flavicarpa) and purple passion fruit (P. edulis f. edulis).

Indeed, metabolomics and transcriptomics have been used to investigate the underlying mechanisms of colour tone formation in these two passion fruit species. The concentrations of most flavonols, anthocyanins, and flavanols involved in fruit colour formation were significantly higher in purple passion fruits than in yellow passion fruits, and molecular biological analysis revealed the characteristics of each passion fruit.

Passion fruit is a popular fruit that is eaten all over the world. P. edulis is commonly used in processed foods like juice, and the seeds are frequently discarded as waste. However, from the standpoint of waste reduction, the industrial use of seeds is desirable, and various studies on the industrial use of passion fruit seeds have been conducted. Many nutrients are found in P. edulis seeds, and the lipids are high in polyunsaturated fatty acids like linoleic acid. Furthermore, the seeds contain a variety of polyphenols, particularly stilbenes, such as piceatannol, a unique compound found in P. edulis seeds with a higher concentration than in other edible plants.

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