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Phytochemical analysis and antioxidant activity of Pistacia lentiscus fruit extracts during the ripening stages: Potential uses in the food industry

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The phenolic composition of Pistacia lentiscus fruits extracts at five different maturation stages were investigated for their phenolic composition, antioxidant capacity and enzyme-inhibitory potential against α-glucosidase and acetylcholine esterase activity. Optimization of the extraction of phenolic compounds from the last stage of ripening has also been undertaken.

This study revealed the presence of thirty molecules, including nine anthocyanins, two phenolic acids, one newly-identified stilbene, seven flavanols, seven flavonols, two flavanones, one flavanonol and one dihydrochalcone. The early stages of ripening were the richest in flavonoids and phenolic acids, while anthocyanins accumulated towards the end of fruits development. The extracts of Pistacia lentiscus fruits showed good antioxidant and α-glucosidase-inhibitory potential as well as a moderate inhibitory action against acetylcholine esterase activity, with variations depending on the stage of maturation, although the early stages of fruit development presented the greatest potential.

Optimization of the extraction allowed the implementation of an eco-responsible anthocyanin extraction model, thereby saving time, solvent and plant material.

The results obtained in the present study indicate that ripe Pistacia lentiscus fruits are an important source of anthocyanin-based nutraceuticals and for food, while unripe fruits would be an interesting source of other flavonoids to produce natural extracts enriched in flavonols and flavanols.

Biography

Professor Djebbar Atmani is a senior lecturer at the Faculty of Nature and Life Sciences, University of Bejaia (Algeria). He obtained his Master of Science degree from California State University, Los Angeles (USA) and his PhD from the University of Sétif (Algeria). His research interest is natural products from medicinal plants. He published over sixty papers in high impact scientific journals, attended several seminars and symposia worldwide and served as reviewer for many journals.

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