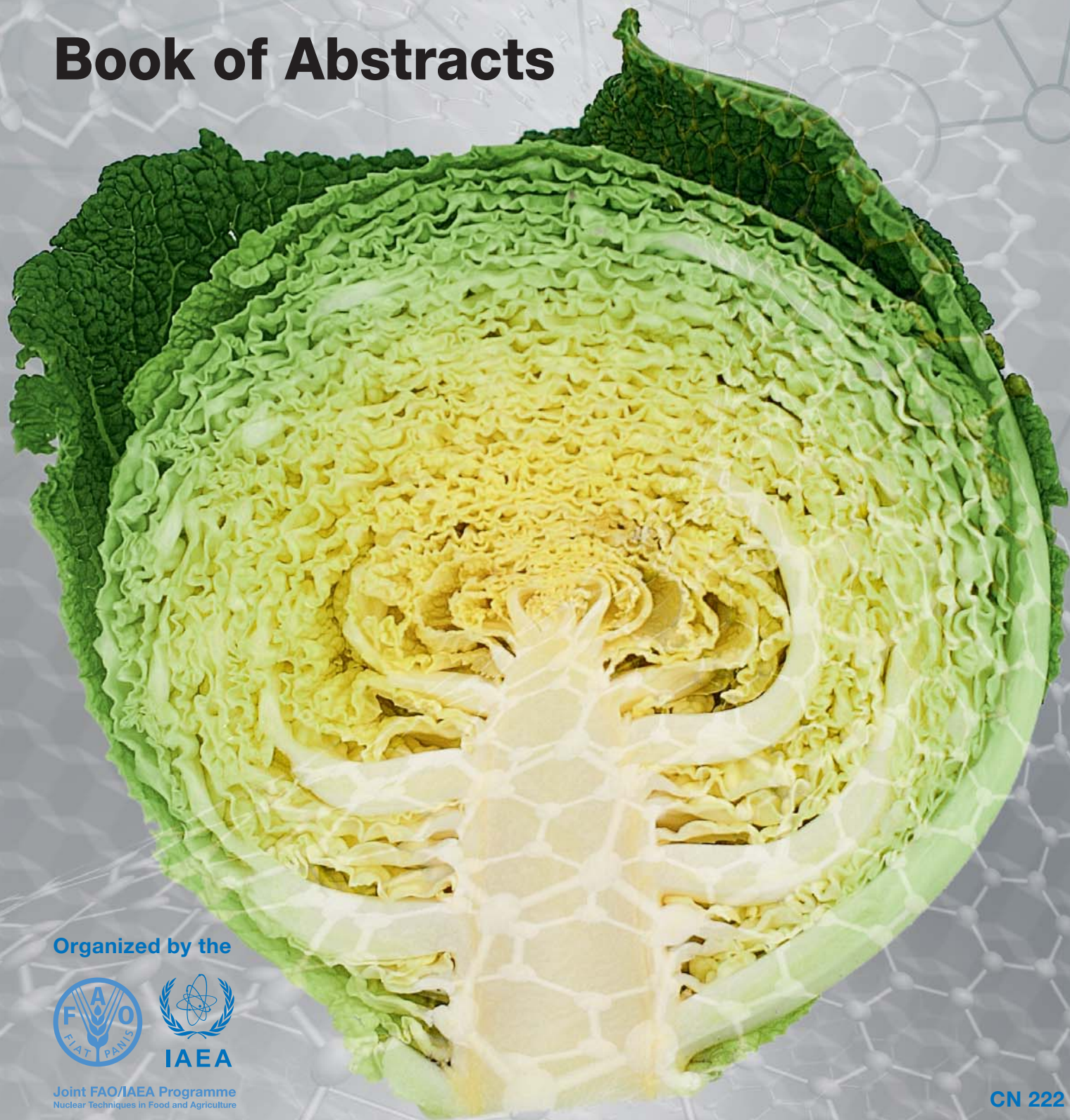


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Effects of gamma irradiation and extraction method in the antioxidant potential of wild and commercial *Tuberaria lignosa* samples

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Irradiation is recognized as a safe and effective food preservation method used worldwide to decontaminate and extend the shelf-life of fresh and dried agricultural products [1]. *Tuberaria lignosa* (Sweet) Samp. is one of the most popular medicinal plants in several regions of the Iberian Peninsula, used to treat various diseases and ailments [2]. Interesting antioxidant properties were already highlighted by our research group in this plant [3], which may be related to beneficial effects in human health by neutralizing free radicals that arise from various metabolic processes. In the present work, the effects of gamma irradiation (doses of 0, 1, 5 and 10 kGy performed in a Co-60 experimental equipment) and extraction method (water infusion or decoction) on the antioxidant activity of wild and commercial dried samples of *T. lignosa* were evaluated and compared. Four in vitro assays were used to evaluate the antioxidant activity, measuring DPPH (2,2-diphenyl-1-picrylhydrazyl) radical scavenging activity, reducing power, inhibition of β -carotene bleaching and inhibition of thiobarbituric acid reactive substances (TBARS) formation. The potential effects of irradiation dose, extraction method and plant origin were evaluated by discriminant analysis, using the stepwise procedure. The results showed that the different irradiation dose does not have significant effects on the antioxidant activity of the samples. Regarding the extraction method, decoctions showed higher antioxidant activity than infusions (lower EC50 values) in all in vitro assays, probably due to a higher extraction yield of bioactive compounds. Additionally, the origin of the plant (wild or commercial) also had no effect on the analyzed parameters. The results herein reported support the traditional use of *T. lignosa* in folk medicine (especially decoction preparations), and also the use of gamma irradiation as an effective technology to process this plant in order to maintain antioxidant potential.

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