

## Determination of Vitamin D<sub>2</sub> in UV-B treated Mushrooms

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Vitamin D deficiency is nowadays one of the most common nutritional deficiencies worldwide associated with a number of health risks in certain populations, such as hyperparathyroidism, rickets and osteomalacia. Among the few natural sources containing sufficient levels of vitamin D, commonly consumed mushroom species can provide substantial amounts of ergocalciferol (vitamin D<sub>2</sub>) after natural or artificial UV-light treatment, and thus they are recognised as the only non-animal dietary source of vitamin D [1]. Within this framework, the present study aims to investigate the UV treatment as a means to rapidly increase vitamin D content in king oyster mushrooms (*Pleurotus eryngii*) in comparison to non-treated cultivated mushrooms. UV-B irradiation was used for the post-harvest irradiation under the controlled environment of a thermostabilized chamber. For the efficient recovery of vitamin D from the UV-B exposed mushrooms, an analytical protocol was developed, including a hot alkaline hydrolysis work-up with short extraction time and clean-up steps of the extract. Moreover, a selective and sensitive targeted Liquid Chromatography-Tandem Mass Spectrometric methodology was developed for the quantitative determination of the vitamin D forms (D<sub>2</sub> and D<sub>3</sub>) in the studied samples. The LC-MS analysis revealed high ergocalciferol concentrations in the UV-treated mushrooms ranging from 50- to 120- fold higher vitamin D<sub>2</sub> compared to the control group.

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### References

[1] G. Cardwell, J. Bornman, A. James and L. Black, *Nutrients*, 10 (2018) 1498.