

## **Factors Influencing Sulforaphane Content in Broccoli Sprouts and Subsequent Sulforaphane Extraction**

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### Abstract

Broccoli sprouts contain 10–100 times higher levels of sulforaphane than mature plants, something that has been well known since 1997. Sulforaphane has a whole range of unique biological properties, and it is especially an inducer of phase 2 detoxication enzymes. Therefore, its use has been intensively studied in the field of health and nutrition. The formation of sulforaphane is controlled by the epithiospecifier protein, a myrosinase co-factor, which is temperature-specific. This paper studies the influence of temperature, heating time, the addition of myrosinase in the form of *Raphanus sativus* sprouts in constant ratio to broccoli sprouts, and other technological steps on the final sulforaphane content in broccoli sprout homogenates. These technological steps are very important for preserving sulforaphane in broccoli sprouts, but there are some limitations concerning the amount of sulforaphane. We focused, therefore, on the extraction process, using suitable  $\beta$ -cyclodextrin, hexane and ethanol, with the goal of increasing the amount of sulforaphane in the final extract, thus stabilizing it and reducing the required amount sulforaphane needed, e.g., as a dietary supplement.

Keywords: broccoli and radish sprouts;sulforaphane;myrosinase;extraction;epithiospecifier protein

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