



Vitamin D mushrooms

Nutrient data provided by the Australian Mushroom Growers Association

June 2015

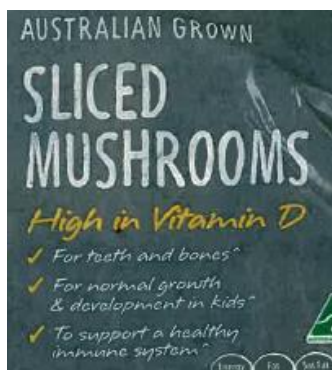
Vitamin D mushrooms

In April 2015, the Australian Mushroom Growers Association submitted retail mushroom samples for analysis by the National Measurement Institute (NMI) for the vitamin D content of both regular and vitamin D enriched mushrooms. FSANZ did not provide any funding for these analyses and was not involved with the collection of samples or analytical processes. The data underwent FSANZ internal quality assurance and data validation processes prior to preparation of this report. FSANZ would like to thank the Australian Mushroom Growers Association for making this data available.

Background

Mushrooms naturally contain ergosterol which is a precursor to vitamin D. When exposed to any source of ultra-violet (UV) light e.g. sunlight or fluorescent light, ergosterol is converted to ergocalciferol (commonly known as vitamin D2). Regular commercially grown mushrooms which are not specifically subjected to UV light contain moderate levels of vitamin D. Exposing these mushrooms to 1-2 seconds of UV light after harvesting increases vitamin D content while retaining the remaining nutrients and appearance of the mushrooms¹.

Mushrooms which have been specifically exposed to UV light can be identified by their labelling, such as those pictured below. They are referred to as 'vitamin D mushrooms'.



Sampling and analysis

Regular and vitamin D mushrooms were purchased from retailers in Perth, Adelaide, Melbourne, Sydney and Brisbane. The mushrooms were then placed in an insulated, light proof container with a cool brick in their original packaging before being sent directly to the NMI Melbourne laboratory for analysis.

Samples were analysed as both raw and cooked versions. Cooked samples were prepared by stir-frying for 5 minutes in a hot non-stick pan without added fat or water. Both vitamin D2 and moisture were analysed.

Vitamin D levels were determined by high performance liquid chromatography (HPLC) using NMI's in-house method VL294 for all analyses.

Results

Average results for each mushroom type are summarised in Table 1. The complete set of results is available at Attachment 1.

Table 1: Vitamin D composition of regular and vitamin D mushrooms

Mushroom Type			Number of samples	Vitamin D2 µg/ 100g*
Regular	sliced	raw	6	2.2
		cooked [#]	1	3.1
	whole	raw	12	2.3
		cooked	1	2.3
Vitamin D	sliced	raw	10	26.6
		cooked	1	52.0

* Values are per 100 g edible portion; commercial mushrooms are 100% edible

[#] Cooked samples were composites prepared by selecting four of the individual purchases from the equivalent raw version.

Uses of data by FSANZ

The results of this analysis will be incorporated into future releases of FSANZ's reference database NUTTAB and the Nutrition Panel Calculator.

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References

1. Vitamin D (2015). *Australian Mushroom Growers Association*.
<http://www.powerofmushrooms.com.au/health-nutrition/health-nutrition/vitamin-d/>