

# Increasing the nutritional properties and digestibility of lentils by solid state fermentation

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## Introduction

Due to global population growth, global demand for protein will increase in the coming years. From a long-term economic and environmental point of view, moving from animal to plant protein supply is desirable to meet demand. Among the legume family, lentils, in addition to being economical, have attracted much attention due to their high content of biologically active compounds with potential benefits for human health. Therefore, it seems that fermented red lentils can be used as a new compound in functional food.

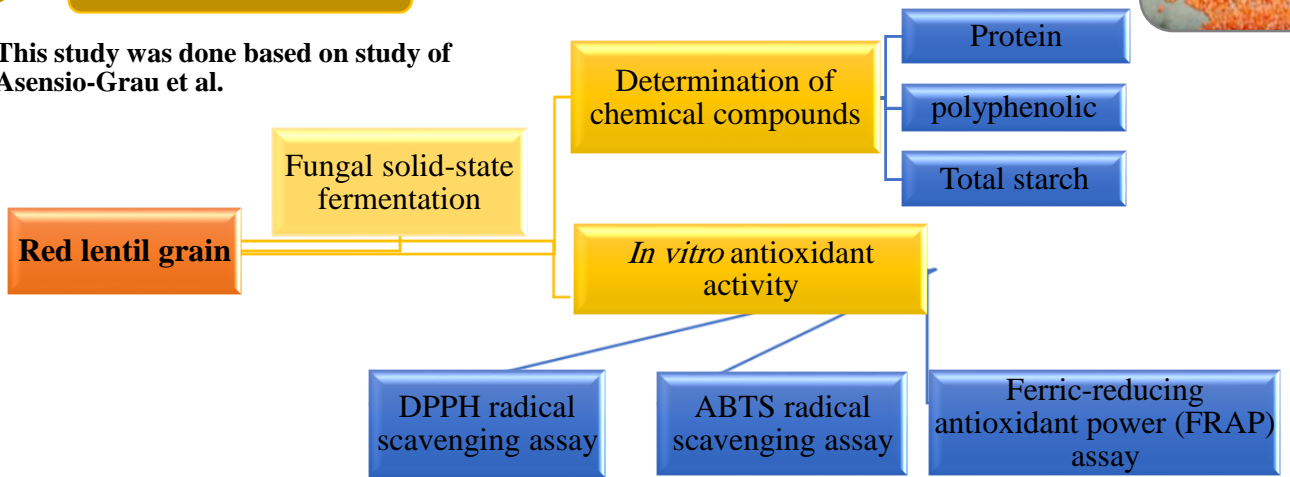
## Objectives

This study was performed to evaluate the effect of solid state fermentation on nutritional and biological characteristics of lentils



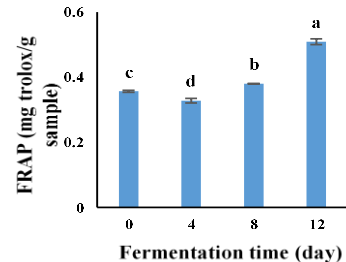
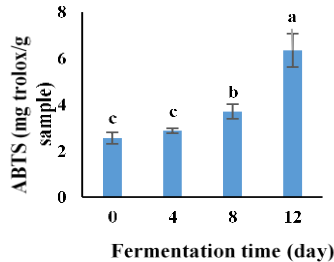
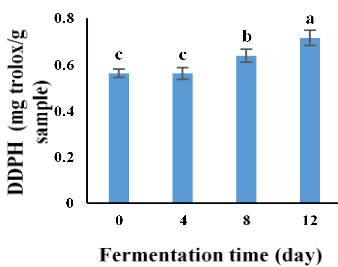
## Methods

This study was done based on study of Asensio-Grau et al.



## Results

Fermentation time (day)	Protein (g/g sample)	Total starch (g/g sample)	Polyphenol (mg gallic acid/ g sample)
0	11.14 ± 0.11 <sup>d</sup>	46.3 ± 0.29 <sup>b</sup>	0.307 ± 0.020 <sup>d</sup>
4	11.36 ± 0.42 <sup>c</sup>	45.1 ± 0.90 <sup>c</sup>	0.327 ± 0.019 <sup>c</sup>
8	11.82 ± 0.07 <sup>a</sup>	48.98 ± 1.78 <sup>a</sup>	0.534 ± 0.020 <sup>b</sup>
12	11.56 ± 0.52 <sup>b</sup>	40.1 ± 1.45 <sup>d</sup>	0.937 ± 0.030 <sup>a</sup>



## Conclusion

As a result of fermentation, the content of polyphenols increased. Fermented samples also showed higher antioxidant potential so fermented lentils could be used as a useful compound in functional foods. In addition, the reduction of starch during fermentation can be essential in designing functional foods.

## References

Asensio-Grau, A., Calvo-Lerma, J., Heredia, A., & Andrés, A. (2020). Enhancing the nutritional profile and digestibility of lentil flour by solid state fermentation with: *Pleurotus ostreatus*. *Food and Function*, 11(9), 7905–7912. <https://doi.org/10.1039/d0fo01527j>