

Abstract

Antioxidant Properties of White Sesame (*Sesamum indicum* L.) Flour on Human Liver Cells In Vitro [†]

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Abstract: White sesame (*Sesamum indicum* L.) flour, an edible residue resulting from seed oil extraction, may become a novel alternative of healthy products due to its high polyphenols content—compounds with many beneficial effects for human health. In the present study, the antioxidant properties of sesame flour were characterized in human cells in vitro. The hepatic cell line HepG2 was treated for 24 h with degreased sesame flour extracts or pinorensinol—one of the main polyphenols of this flour. Then oxidative stress was induced by H₂O₂ exposure. Cell viability and reactive oxygen species amount were measured by flow cytometry. Antioxidant enzyme activity of glutathione peroxidase (GPx), reductase (GR) and catalase (CAT) were determined by spectrophotometry. Results showed that pinorensinol decreased H₂O₂ oxidative effects by up to a 40%, increasing CAT and GR activity without compromising cellular viability. The largest dose of sesame flour extracts decreased H₂O₂ stress induction by up to 46%, but increased cell death levels. Additionally, sesame flour raised CAT and GPx activity by 100%. These findings suggest that sesame flour has antioxidant properties through antioxidant enzyme activity modulation. Since pinorensinol is one of the major polyphenols of sesame flour, this industrial residue might be a potential source for functional foods with health benefits.

Keywords: antioxidant; cellular biology; polyphenols; sesame

Supplementary Materials: The following are online at www.mdpi.com/xxx/s1, poster presentation.

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