

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

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Abstract: White sesame flour resulting after seed oil extraction is an edible residue, which 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 24h with degreased sesame flour extracts or pinorexinol, one of the main polyphenols of this flour. After, 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 pinorexinol decreased H₂O₂ oxidative effects up to a 40%, rising Cat and GR activity without compromising cellular viability. Sesame flour extracts mayor dose decreased H₂O₂ stress induction up to 46% yet it increased cell death levels. Also, sesame flour raised a 100% Cat and GPx activity. These findings suggest that sesame flour has antioxidant properties through antioxidant enzymes activity modulation. Since pinorexinol is one of the mayor polyphenols of sesame flour, this industrial residue might be a potential source for functional foods with health benefits.

Keywords: antioxidant; cellular biology; polyphenols; sesame