

## GAMMA-ORYZANOL, A MAIN COMPONENT OF RICE BRAN OIL: *IN VITRO* STUDIES OF ITS ANTIOXIDANT PROPERTIES.

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Rice bran oil, obtained from the pericarp and germ of the *Oryza sativa* seeds, contains a rich unsaponifiable fraction (up to 5%) characterized, among other components, by the presence of gamma-oryzanol (1-2%), a mixture of ferulic acid esters with sterols and triterpene alcohols. Recent studies have shown that it possesses several pharmacological properties, such as antiulcerogenic, antihypercholesterolemic and antiatherosclerotic effects; moreover, gamma-oryzanol has been widely commercialised as an anabolic natural substance of use to sporting people, and is also employed in skin and hair cosmetic formulations as demulcent, sunscreen and antioxidant substance (1). In Japan, it is used as natural antioxidant in foods, beverages and cosmetics (2).

Since investigations so far carried out provided an unclear picture of the mechanism of the antioxidant action of gamma-oryzanol, the aim of the present work has been the contribution to the elucidation of its the molecular mechanisms by using *in vitro*, previously well-characterized, experimental models (such as scavenging of DPPH° ROS scavenging, Fe and azocompound triggered lipoperoxidation) that allow us to study the reactions involved in the complex process of lipoperoxidation. Our results demonstrate that gamma-oryzanol:

- is effective as scavenger of the stable radical DPPH°;
- is able to scavenge alkoxyl radicals produced in Fe<sup>++</sup> oxidation by cumene hydroperoxide;
- is effective, only when incorporated to liposomes, in the inhibition of lipoperoxidation triggered by the liposoluble azoinitiator AMVN.

- 1) Cicero A.F.G., Gaddi A. Rice bran oil and gamma-oryzanol in the treatment of hyperlipoproteinemias and other conditions. (2001) *Phytoter. Res.*, **15**:277-289.
- 2) Scavariello E.M., Arellano D.B. Gamma-oryzanol: an important component in rice bran oil. (1998) *Arch. Latinoam. Nutr.*, **48**:7-12.