P031 Changes in proteasome functionality induced by wheat sprout extracts

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Natural compounds able to affect proteasome functionality have been widely studied in the last years, because of their possible implication in cancer therapy. Wheat sprouts contain organic phosphates, enzymes, reducing glycosides and polyphenols. Furthermore, we have reported on the effects of several polyphenols on 20S proteasomes, underlying the dual role of epigallocatechin-3-gallate as an antioxidant and a proteasome effector in cancer cells.

Treatment of isolated 20S proteasomes with hydroalcoholic wheat sprout extracts induced a gradual inhibition of all the tested components in both the constitutive and inducible complexes, with the latter degrading β-casein at a slower rate.

Separating the polyphenolic from the protein fraction of wheat sprout extract, we demonstrated that both components exerted an inhibitory effect on proteasome activity *in vitro*. HeLa tumor cells and the normal epithelial MDCK cells were exposed to both the polyphenolic and the protein components, showing a different susceptibility to the treatment: tumor cell line proteasomes showed a higher degree of impairment with respect to normal cell proteasomes. Further studies will be necessary to understand if wheat sprout extract, behind its antioxidant properties, could be considered a possible therapeutic device in anticancer treatment.