



61° SIB MEETING Virtual Edition

23-24 September 2021

Scientific Program

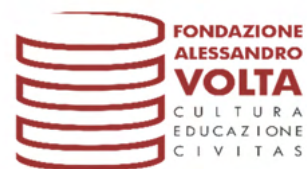
ABSTRACT BOOK

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METHYL GALLATE, A PHYTOCHEMICAL DERIVATIVE OF GALLIC ACID, INDUCES AUTOPHAGY AND APOPTOTIC CELL DEMISE IN HUMAN COLON CANCER CELLS

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Nowadays, a growing interest has been paid to bioactive natural products derived from fruits^[1,2], plants or chemically modified phytochemicals to use as new resources with the anticancer potential^[3]. In the present study we present preliminary results concerning the antitumor potential of methyl gallate (MG), a gallate ester widely spread in many fruits and plant species such as Meliaceae species, *Galla Rhois*, *Mangifera indica* and seed coats of *Givotia rottleriformis* Griff^[4].

We found out that MG displays a strong anti-tumor activity, reducing the viability of HCT116 cells, a human colon adenocarcinoma cell line, causing a remarkable LDH release and a reduction of clonogenic potential. The analysis of the effects exerted by MG unveiled that this phytochemical induces in the first 24 h an autophagic response that was associated to the increase in LC3II and p62 protein content. The cytotoxic effect of MG was modestly counteracted by the addition of antioxidant NAC, but was associated with a remarkable increase in stress markers. Prolonging the exposure of cells to MG treatment up to 48 h, we observed that MG-treated cells underwent to a p53 dependent apoptotic cell death as evidenced by procaspase-3 decrease and PARP activation. Ongoing studies aim to better characterize the relationship existing between the stimulation of the autophagic machinery and the main players of cellular stress as well as of apoptotic cell death.

References

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