EnoMed: The Power of Antioxidants From Grapes: A Green Perspective for Anti-Tumor Treatments

Mutti, Letizia (School: Istituto Superiore Ascanio Sobrero)
Figazzolo, Luca (School: Istituto Superiore Ascanio Sobrero)

The pandemic, with which we have lived for two years now, has destabilized each of us, depriving us of our daily lives and countless opportunities. Some categories have suffered more than others, such as cancer patients who have had to interface with health care often resilient in facing the emergency. Our project aims to find naturally available support systems for conventional anti-tumor treatments, using natural antioxidants extracted using the Green method from plant substrates: Nebbiolo grape skins and local wine processing waste, the recovery of which is valorized according to the principles of the circular economy and environmental sustainability. We have quantified several types of polyphenols among those extracted, these biomolecules are characterized by a strong antioxidant power that can be exerted by deactivating ROS. Cancer cells are subjected to high oxidative stress, with a high production of ROS, which leads them to avoid apoptosis, proliferate and metastasize. In this context, polyphenolic extracts prepared and characterized by Uv-Vis spectrophotometry and HPLC were found to be particularly effective in inhibiting the production of ROS and their biological effect. Our extract has an important antioxidant power, with the ability to decrease the number of cells in culture even more than Cisplatin (chemioterapic).

Awards Won: