Emerging non-thermal technologies for the extraction and preservation of wine molecules with sensory impact

António Morata
antonio.morata@upm.es

The extraction and stabilization of compounds with sensory impact (anthocyanins, tannins, varietal aroma, and others) is a key aspect in wine quality. Emerging non-thermal technologies allow the winemakers to speed the conventional maceration, also preserving the integrity of these molecules in a gentle process. Technologies such as High Hidrostatic Pressure (HHP), Ultra-High Pressure Homogenization (UHPH), Pulsed Electric Fields (PEF), Ultrasound (US), and irradiation technologies are really useful to extract and solubilize phenols and aroma compounds at low temperature and quickly. Moreover, some of these technologies can inactivate oxidative enzymes increasing the stability. Additionally, most of them are able to eliminate wild microorganisms facilitating the use of non-Saccharomyces starters and other emerging fermentation biotechnologies. Most of these technologies have already been approved by OIV and can be used as regular enological practices.