Vine-Shoot Waste Aqueous Extracts for Re-use in Agriculture
Obtained by Different Extraction Techniques: Phenolic, Volatile, and Mineral Compounds
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**ABSTRACT:** Vine-shoots are an important waste in all viticulture areas that should be re-used with innovative applications. The aim of this work was to produce Airen waste vine-shoot aqueous extracts by four solid-liquid extraction techniques such as conventional solid-liquid extraction (CSLE), solid-liquid dynamic extraction (SLDE-Naviglio), microwave extraction (ME), and pressurized solvent extraction (PSE). Their chemical composition was studied in terms of phenolic, volatile, and mineral compounds. The highest concentrated extracts corresponded to CSLE and SLDE-Naviglio, independent of the conditions tested. The CSLE extracts had the highest flavanols, phenolic acids, and stilbenes contents. The volatile composition, quantified for first time in this work, shows that furanic compounds were the most abundant. All extracts showed an interesting mineral content, which may be assimilated by plants. These results show the agricultural potential of Airen used as grape biostimulants and/or foliar fertilizer.

**KEYWORDS:** Airen vine-shoot wastes, aqueous extracts, minerals, phenolics, volatiles