

# Application of Winter Savory Extracts Obtained by SFE and Hydrodistillation as Food Preservatives

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The aim of this work was application of winter savory (*Satureja montana* L.) essential oil and lipid extracts as natural antioxidants to prolong shelf life and improve quality of fresh pork sausages. Essential oil (EO) was obtained by conventional hydrodistillation procedure, while supercritical fluid extraction at 100 bar and 40°C (E1) and 300 bar and 40°C (E2) was used for preparation of winter savory lipid extracts. Carvacrol was the most abundant compound in all investigated samples (>60%), while *p*-cymene, borneol, *trans*-caryophyllene,  $\delta$ -cadinene and caryophyllene oxide had relative content higher than 1%. Obtained samples were tested as natural food preservatives in order to determine their effect on the oxidative stability of fresh pork sausages. Each extract (EO, E1 and E2) was added in sausage samples in two concentrations, 0.75 and 0.150  $\mu\text{g/g}$  and samples were stored at 4°C for 8 days. TBARS assay was used in order to determine oxidative stability of the samples and results were compared with control (sample without added extract). Addition of winter savory extracts and essential oil resulted in significantly reduced TBARS values, hence improved oxidative stability of fresh pork sausages. Winter savory extract obtained at 300 bar and 40°C exhibited the best influence on oxidation prevention, which suggested that aromatic plant extracts obtained by SFE could be successfully used as natural food additives.

**Keywords:** *Satureja montana* L., Supercritical fluid extraction (SFE), Essential oil, Oxidative stability