ROSEMARY EXTRACT FROM SUPERCRITICAL CARBON DIOXIDE TO MEAT ADDITIVES

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1. OBJECTIVES:

- Discuss Rosemary extract functions as an additive in meat products.
- Learn how is it extracted from supercritical carbon dioxide.
- Determine adequate extraction conditions.

2. ROSEMARY EXTRACT

Salvia rosmarinus.

Famíly: *Lamiaceae.*

Fig. 1. Rosemary plant. https://www.housebeautiful.com/lifestyle/gardening/a41055925/rosemary-plant-care/ Date of consultation:19/04/2023

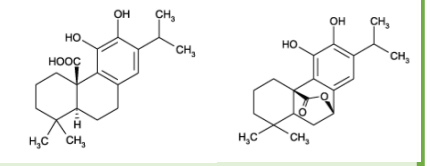

Fig. 2. Carnosol and Carnosic acid.*

Free radicals and Iron II chelators.

Superoxide dismutase and glutathione peroxidase.

Content of essential oil: 0,3-2%.

3. LEGISLATION AS A MEAT ADDITIVE

- 2008: Scientific Opinion.
- NOAEL: 20-60 mg / kg body weight / day.
- ADI: 0,04-0,11 mg / kg body weight.
- 2010: Directive 2010/69 for the regulation of Rosemary extract as an additive E-392.
- Max. dose: 100 mg/kg product weight (dry embed meat and dehydrated meat).
- Regulation (EU) 723/2013: 15 mg carnosol and carnosic acid/ kg product (fat < 15%).

4. EXTRACTION WITH SUPERCRITICAL CARBON DIOXIDE

- 8-15 MPa
- 31,2 ºC
- With polar co-solvents (methanol, ethanol, water < 15%).
- 10-20 MPa: More solubilization of rosmarinic acid.
- Aproximate conditions: 40 ºC, 300 min, 150 bar, ethanol 7%.

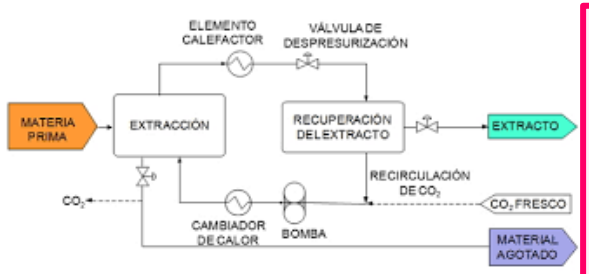

Fig. 3. Extraction with supercritical carbon dioxide. **

5. CONCLUSIONS

- The rosemary extract has good antioxidant and antimicrobiant activities and could be well used in the meat industry.
- Supercritical carbon dioxide extraction's disadvantage of expensive equipment.
- More studies have to be developed.

*EFSA. (2008). Use of rosemary extracts as a food additive - Scientific Opinion of the Panel on Food Additives, Flavourings, Processing Aids and Materials in Contact with Food. *EFSA Journal*, *6*(6).

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