

Vacuum steam drying for preservation of bioactive components



Aim of the project: Evaluation of vacuum steam drier potential for preservation of bioactive components from unripe apples and almond skin.



The unripe apples were sliced and dried for approximately 8 hours in deep vacuum. The heat was supplied at low temperature with a combination of conduction, convection and Radiation (IR).

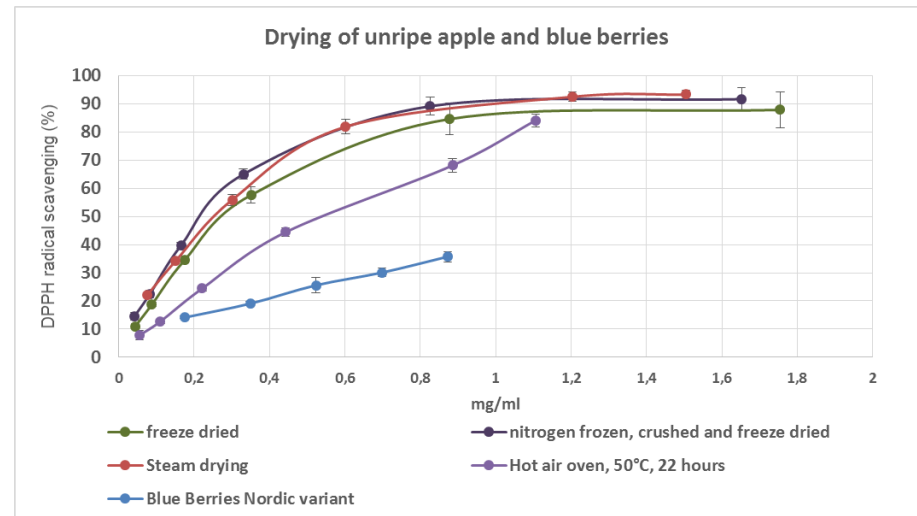
DryingMate hybrid vacuum drier –
for small samples



Convective
heat transfer

Conductive
heat transfer

Radiative
heat transfer





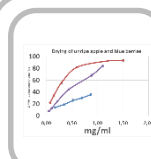
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GOAL:
Demonstrate how an optimized steam drying process can maintain a higher content of bioactive compounds compared to selected conventional drying methods.



WHY: To preserve heat-labile bioactive components in raw material is essential to produce a promising dehydrated start material for extraction of bioactive compounds, such as antioxidants and antimicrobial agents. Today drying is costly in energy and time.



HOW:
Investigate the impact of drying processes on the antioxidant capacity by examining the ability to scavenge the radical of DPPH.



Related to the inSPIRe project:

Pillar III: Improved Food Quality by Controlling Molecular Functionality



OUTCOME:
Perspective of low cost drying strategy to preserve bioactive components for production of high value ingredients from apple and almond from industrial waste.



WHO:
Anne Maria Hansen and Karin Loft Eybye, Danish Technological Institute.



BUDGET: 300.000 Dkr
(120.000 Dkr. Inspire food share)

FUNDING BODY: InSPIRe, DryingMate A/S, Odense Marcipan A/S and Kærbo frugtplantage

PROJECT PERIOD: Sept 2014 to sept 2015