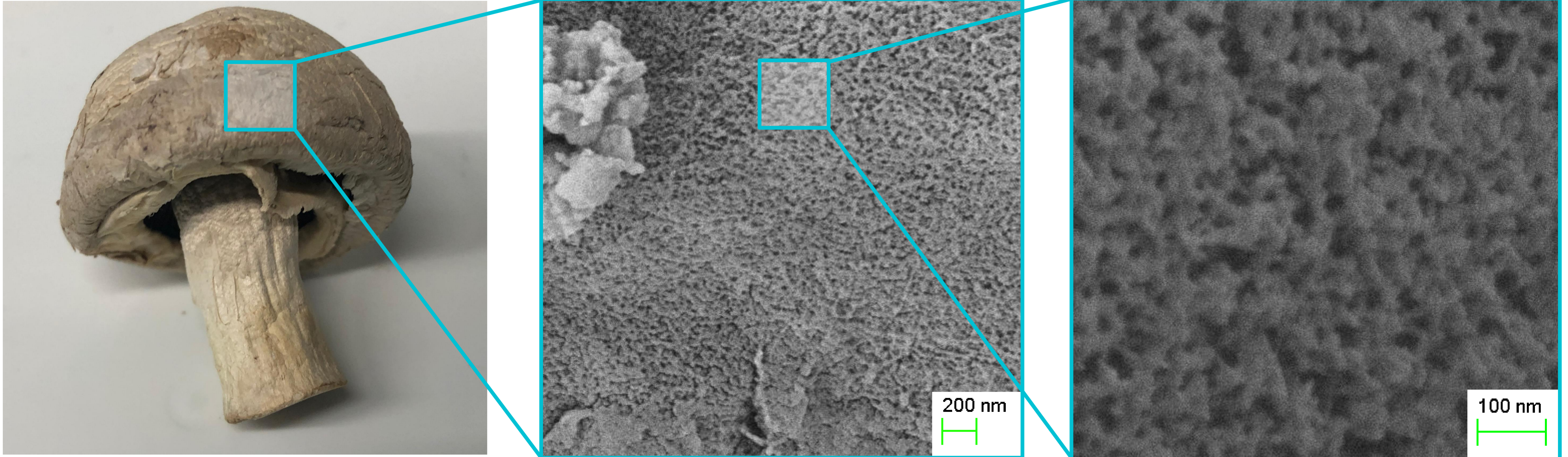




Natural Grown Aerogels from Fruits, Vegetables and Mushrooms: Processing and Characterization

L. Gibowsky, B. Schroeter, P. Gurikov, G. Gaggero, G. Liese, J. Husung, R. Subrahmanyam and I. Smirnova

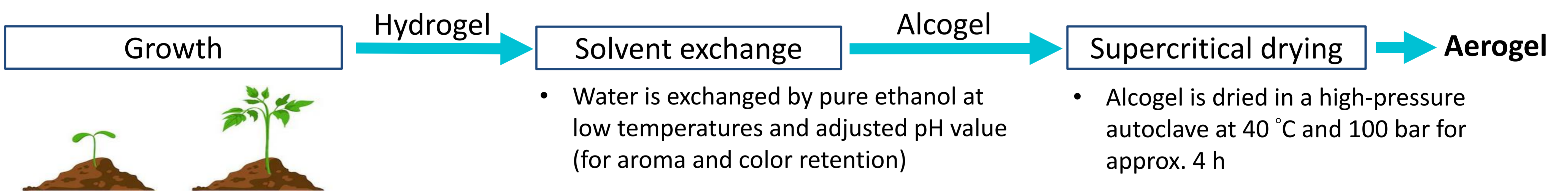


Outline

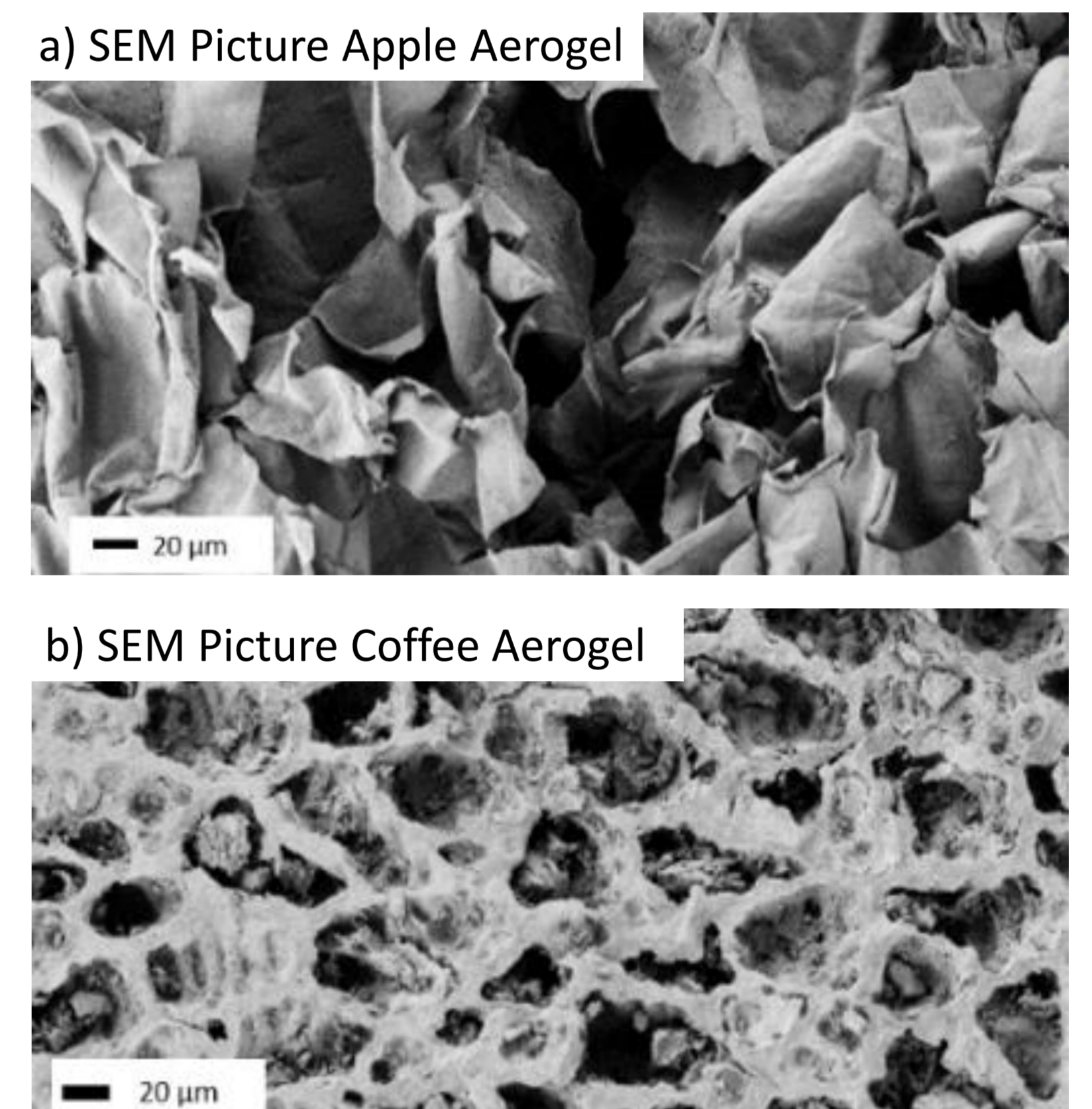
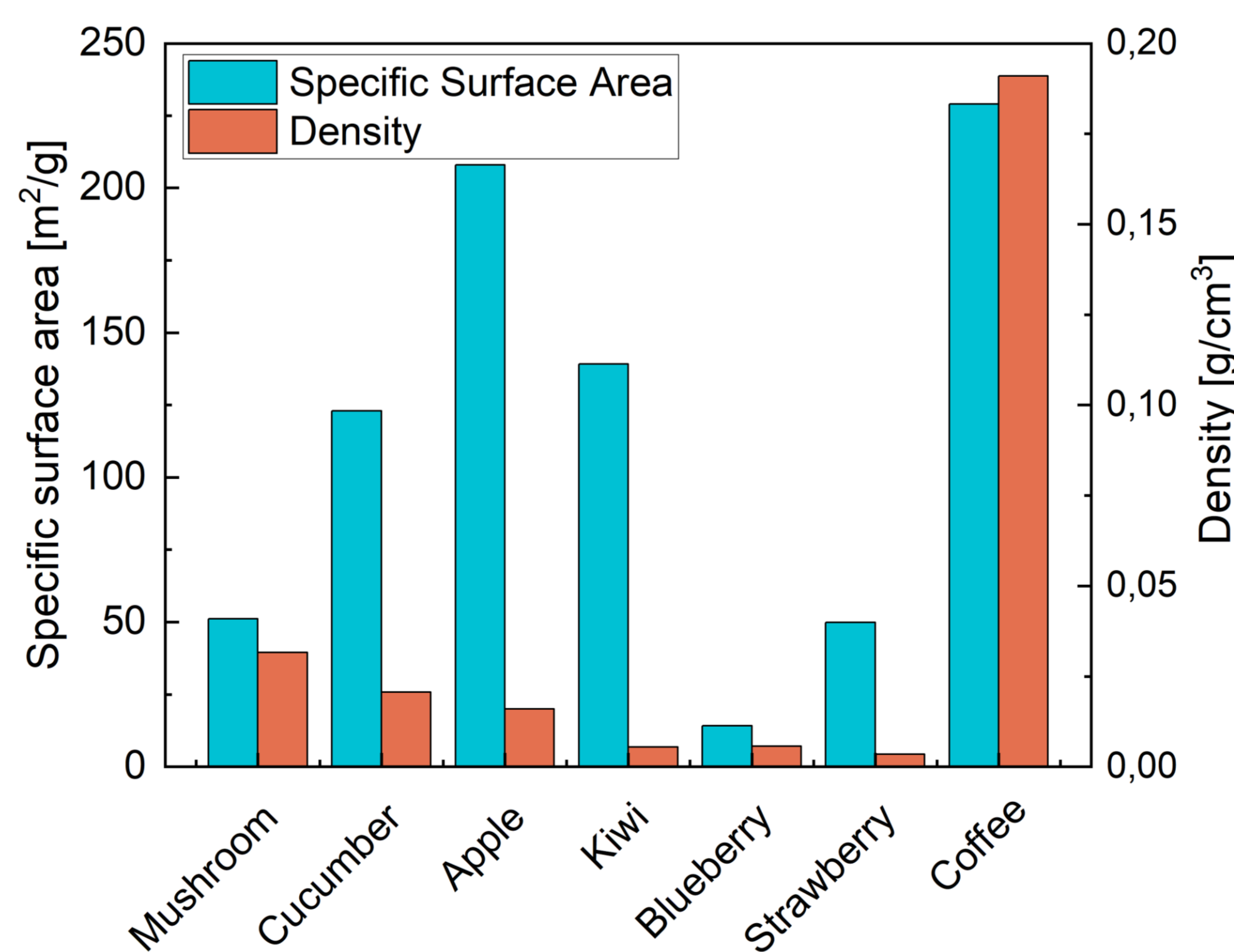
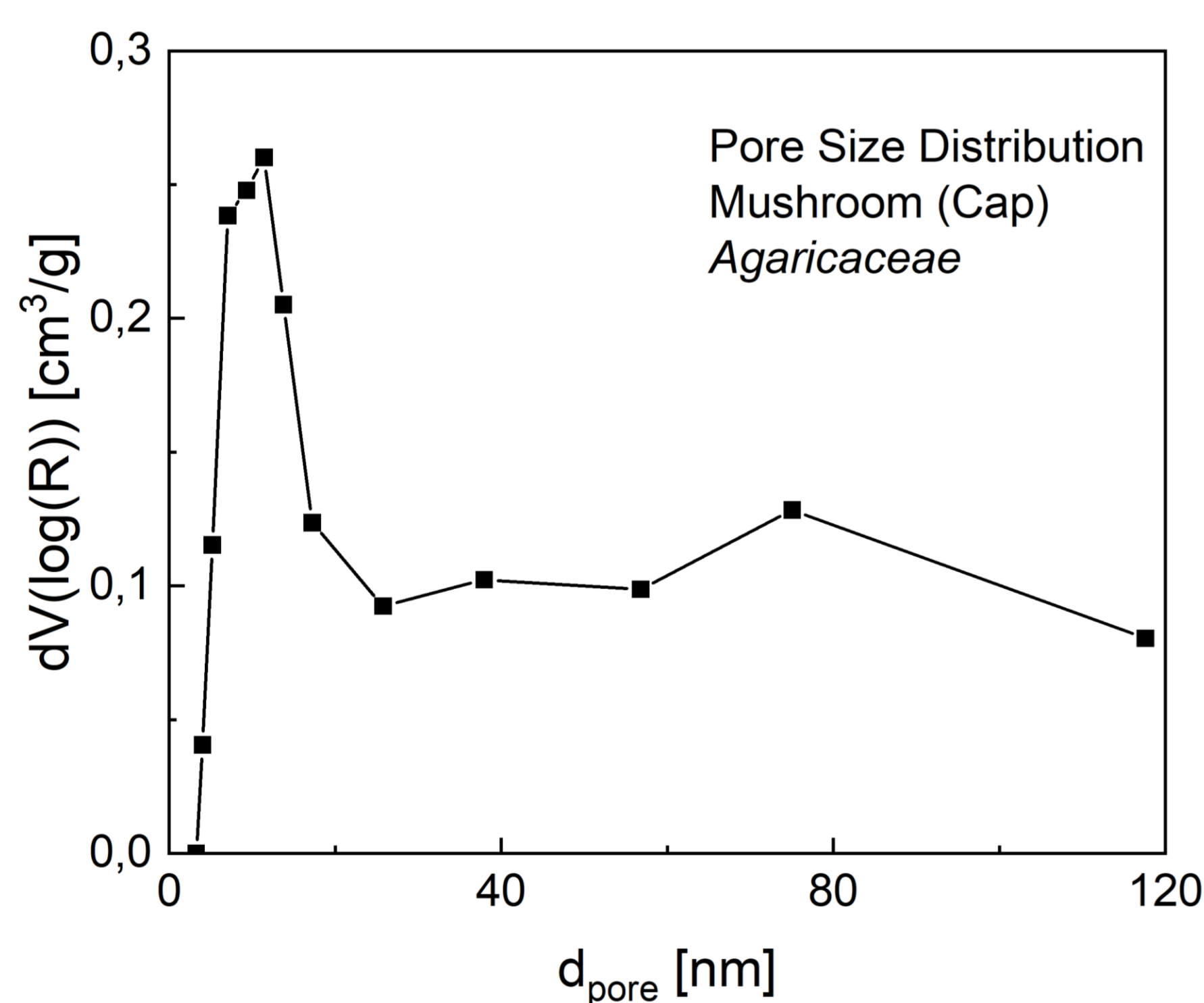
Aim: Conversion of fruits, vegetables and mushrooms into highly porous solids while preserving the intrinsic (mesoporous) structure

- Valorization of “naturally” grown porous structures (biorefinery approach)
- Vast application potential due to special properties of aerogels (low density, high porosity, high surface area, among others)
- Control of process conditions during solvent exchange allows to retain taste and color

Production Process



Results



Summary & Outlook

- Promising alternatives for the recycling/disposal of biopolymer waste through the conversion into valuable aerogels
- Possible applications: insulating materials, edible carrier matrices/encapsulants
- Future work: optimization of solvent exchange & washing steps, broad screening of materials, conversion to carbon aerogels via pyrolysis