**Hexanal releasing spruce galactoglucomannan aerogels for active packaging of fresh fruit**

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Active packaging not only protects its contents from the outside environment, but also interacts with the product, e.g., by releasing or adsorbing functional compounds. Softwood hemicelluloses, spruce galactoglucomannans (GGM), can be used as the main matrix of highly porous, light-weight and strong sponge-like aerogels.1 These material properties make GGM aerogels very attractive for the use, for example, in active food packaging. Volatile aldehydes, such as, hexanal, are known to reduce plant tissue softening caused by senescence and inhibit microbial growth, and may therefore extend the shelf-life of vegetables and fruits. Our approach in this study was to develop spruce galactoglucomannan aerogels which can be used for both production and delivery of hexanal into the atmosphere of food packaging. For this purpose, GGM hydrogels were loaded with GGM emulsified sunflower oil prior to drying into aerogels. 2 The formation and release of volatile products from aerogels were followed by automated headspace solid-phase microextraction (HS-SPME) combined to gas chromatography-mass spectrometry (GC-MS). Sufficient production and controlled release could be achieved *in situ*. The effects of lipid oxidation mechanism and external factors, such as, type and content of catalytes, temperature and relative humidity will be discussed. The results on *in situ* production and release of natural preservatives from GGM aerogels show high potential for their utilization in post-harvest storage and transport of fruit, and in consumer packaging.

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