

Production of meat flavors of purely vegetable, natural origin for flavoring vegetarian and vegan food products

Vegetarian and vegan foods are increasingly in demand, but at the same time many people like the typical savory taste of meat and sausage products. A simple, cost-effective biotechnological method has now been developed which allows savory meat flavors to be produced by fermenting spices using basidiomycete mycelium (edible mushroom, GRAS status) for flavoring vegetarian and vegan foods in particular.

- Natural savory meat flavors can be produced
- Simple fermentation process
- Almost limitless scalability
- Natural spices (onions and garlic) as substrates
- Use of mycelium of edible basidiomycetes

Fields of application

Production of savory meat flavors of purely natural origin for flavoring vegetarian and vegan food products.

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Development Status

TRL3 - Proof of function

Patent Situation

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Service

Technologie-Lizenz-Büro GmbH has been entrusted with the exploitation of this technology and assists companies in obtaining licenses.

Background

The market for vegetarian and vegan foods (meat alternative products, meat substitutes) has grown strongly in recent years. These products are now available in every supermarket. Double-digit market growth is expected for plant-based sausage and meat alternatives. The market in Germany currently accounts for over 700 million euros. Conventional sausage products, i.e. sausage made from meat, still account for a market of just under twelve billion euros in Germany. So there is still a lot of growth potential for plant-based sausage and meat alternatives. However, the quality and taste must be right in order to achieve this strong growth. In addition, consumers are attaching more importance to natural food ingredients. Therefore, natural flavors are becoming increasingly important for the food industry. Flexitarians - who now account for around a third of all households in Germany - will be the key to further growth of meat substitutes. However, they are probably more selective than vegetarians because they prefer a meat experience when consuming these meat alternatives. The need for meat substitutes is also being pushed by an even more pressing issue. It is becoming increasingly difficult to reserve resources and water in order to be able to produce meat. But also for economic and environmental reasons it will be necessary to provide alternatives to meet the demand without wasting limited resources. For example, according to the consulting firm Kearney, actual meat production is expected to account for only 40 percent of the global "meat" consumption by 2040, which means that meat alternatives will actually surpass the market for animal-based meat. According to Statista, global market sales of conventional meat products are expected to decline to \$880 billion by 2040, whereas sales of vegan meat products are set to rise to \$450 billion.

Problem

To mimic the smell and taste of sausage and meat, appropriate savory flavors are added to meat substitutes, but these are often produced artificially. Biotechnological processes using microorganisms such as bacteria, yeasts or fungi have been developed for the production of certain natural flavors, but not yet for savory meat flavors.

Solution

Scientists at the Institute of Food Science and Biotechnology at the University of Hohenheim have succeeded in developing a simple, cost-effective biotechnological process for fermenting spices using basidiomycete mycelium (edible mushroom, not-genetically modified, GRAS status) to obtain a savory flavor extract. This flavoring preparation (aqueous or after solvent extraction) could be further processed in many ways, e.g. to produce solid and liquid products for flavoring vegetarian and vegan food products by means of spray drying.