devices, ceramic spare parts for high-tech industries, etc. However, SLS is practically unknown in food manufacturing.

The main hurdle in SLS technology applied to edible compositions is to find suitable powders, wherein individual powder particles can sinter together under the application of a laser without resulting in the decomposition of the material itself. Furthermore, it is desired that the sintering should lead to the formation of a consolidated, free standing 3D object with a high degree of design resolution. In addition, it is desirable to be able to construct diverse edible objects combining different materials.

In order to address one of more of the foregoing desires, the present invention provides, in one aspect, method for the production of an edible object, comprising providing an edible powder composition suitable for selective laser sintering, wherein the edible powder composition comprises a binder component having a melting or glass transition temperature in the range 10-200°C, said binder selected from a group consisting of carbohydrates, carbohydrate derivatives, fats, oils, waxes, proteins and mixtures of these, wherein the carbohydrates or carbohydrate derivatives are selected from the group consisting of mono-, di-, oligo-, polysaccharides and sugar alcohols, wherein the polysaccharides have a dextrose equivalent (DE) of 2-20, and a structural component which is non-melting at the temperatures below 200°C, said structural component comprising powdered fruits, plants or vegetables, starch or semolina, and subjecting said composition to selective laser sintering to obtain the edible object, wherein the edible powder composition is a free-flowing powder, and wherein the selective laser sintering comprises providing a laser to selectively fuse the edible powder composition by scanning cross-sections on a surface of a powder bed of the edible powder composition. In an example, the present invention provides a method for the production of an edible object, comprising providing an edible powder composition suitable for selective laser sintering, wherein the edible powder composition comprises:

a binder component having a melting or glass transition temperature in the range 10-200°C, and

a structural component which is non-melting at the temperatures below 200°C,

and subjecting said composition to selective laser sintering to obtain the edible object.

In another aspect, the invention provides a food product comprising the edible object obtainable by the method of the invention. This food product has advantageously varying microstructures and thus textures and mouthfeel.

Previously, only sugar crystals were known to be processed using SLS, for example, by CandyFab. The product obtained is melted sugar with a low degree of design resolution. Such monocomponent printing can only be applied in limited ways in the printing of food.

The present invention is based on the judicious insight that a successful production of 3D edible objects can be achieved by using a powder

## Claims

1. Method for the production of an edible object, comprising providing an edible powder composition suitable for selective laser sintering, wherein the edible powder composition comprises

a binder component having a melting or glass transition temperature in the range 10-200°C, said binder selected from a group consisting of carbohydrates, carbohydrate derivatives, fats, oils, waxes, proteins and mixtures of these, wherein the carbohydrates or carbohydrate derivatives are selected from the group consisting of mono-, di-, oligo-, polysaccharides and sugar alcohols, wherein the polysaccharides have a dextrose equivalent (DE) of 2-20, and

a structural component which is non-melting at the temperatures below 200°C, said structural component comprising powdered fruits, plants or vegetables, starch or semolina,

and subjecting said composition to selective laser sintering to obtain the edible object,

wherein the edible powder composition is a free-flowing powder, and

wherein the selective laser sintering comprises providing a laser to selectively fuse the edible powder composition by scanning cross-sections on a surface of a powder bed of the edible powder composition.

2. The method according to claim 1, wherein the binder becomes flowable under the selective laser sintering conditions.

3. The method according to claim 1 or 2, wherein the binder comprises at least two compounds that differ in their melting or glass transition temperatures.

4. The method according to claim 3, wherein the difference in the melting or glass transition temperatures of the binder ingredients are at least 10°C.

5. The method according to claim 3 or 4, wherein the binder comprises at least 5 wt.% of the compound with the lowest melting or glass transition temperature, based on the weight of the binder.

6. The method according to any one of claims 3-5, wherein the compound with the lowest melting or glass transition temperature has the melting or glass transition temperature in the range 10-100°C.

7. The method according to any one of the preceding claims, wherein the binder is present in an amount of 10-90 wt.%, based on the total weight of the composition.

8. The method according to any one of the preceding claims, wherein the structural component is present in an amount of 10-90 wt.% based on the total weight of the composition.

9. The method according to any one of the preceding claims, wherein the binder is in an amorphous state.

10. The method according to claim 1, wherein the binder component is polydextrose.

11. The method according to any one of the preceding claims, wherein water is present in the SLS chamber either as a mist or as powdered ice.

12. A food product comprising the edible object obtainable by the method according to any one of the claims 1-11.

13. The food product according to claim 12, being a bakery product, a dry mix for beverage, an instant soup or a confectionary product.