CLAIMS

1. A method of producing a microparticle, the method comprising

~~-~~ providing a mould assembly, which comprises two moulds that comprise a~~n upper~~ first mould and a ~~lower~~ second mould,

~~-~~ positioning the mould assembly in a closed position~~, wherein the two moulds~~ to define a micro-cavity and to press the first mould and the second mould against each other to ~~exert pressure on~~compress a pliable moulding material within the micro-cavity, wherein the moulding material takes up the shape of the micro-cavity to form the moulding material into a microparticle, and

~~-~~ positioning the mould assembly in an open position, wherein the microparticle adheres to one of the two moulds of the mould assembly.

2. The method according to claim 1, further comprising providing the moulding material inside the mould assembly when the mould assembly is in an open position.

3. The method according to claim 1 or 2, further comprising applying heat to the moulding material ~~for~~ to soften~~ing~~ the moulding material.

4. The method according to any one of the above-mentioned claims, further comprising cooling the moulding material to solidify the moulding material.

~~4~~5. The method according to any one of the above-mentioned claims, further comprising
removing the microparticle from the mould assembly using a vacuum device.

6. The method according to any one of the above-mentioned claims, wherein one of the first and second moulds is dimensioned such that it sticks to the moulded microparticle.

7. The method according to claim 6, wherein the other of the first and second moulds is dimensioned such that it does not hold or stick to the moulded microparticle.

~~5. A method of producing a microparticle, the method comprising~~

~~- injecting a moulding material into a micro-cavity of a mould assembly, which is a closed position, the moulding material flows via a channel of the mould into the micro-cavity, and~~

- positioning the mould assembly in an open position, wherein the microparticle adheres to one of the two moulds of the mould assembly.

6. The method according to claim 5 further comprising applying heat to the moulding material for softening the moulding material.

7. The method according to claim 5 or 6 further comprising removing the microparticle from the mould assembly using a vacuum device.

8. A method of producing a microparticle, the method comprising

- providing a die, the die comprising an orifice with a profile that is essentially the same as a profile of the microparticle,
- pressing a moulding material and the die toward each other, wherein the moulding material passes through the orifice, and
- cutting the moulding material that passes through the orifice such that the moulding material that passes through the orifice forms a microparticle.

8. The method according to any one of the above-mentioned claims, wherein the first and second moulds are produced by milling with a cutting tool.

9. The method according to any one of the above-mentioned claims, wherein the first mould comprises an inner surface including a mould-body surface and several mould-spike surfaces with several partial mould-spike surfaces and/or wherein the second mould comprises an inner surface including a mould-body surface and several mould-spike surfaces with several partial mould-spike surfaces.

~~9~~10. A microparticle produced with a method according to any one of claims 1 to ~~8~~9, the microparticle comprising

a body with ~~a shape essentially of a sphere and~~

a plurality of spikes, the spikes extending from an outer surface of the body~~.~~ ,

~~the~~ each spike ~~comprises~~ comprising

~~-~~ ~~~~a rod portion, the rod portion including a partial cone body; and

~~-~~ ~~~~an end portion, the end portion including a curved outer surface,

wherein

- ~~a~~ a first end of the rod portion is attached to the end portion,
- ~~a~~ a second end of the rod portion is attached to the outer surface of the body, and
- ~~a~~ a cross-section of the partial cone body of the rod portion has a shape of a trapezium.

~~10~~11. The microparticle according to claim ~~9~~10, wherein the microparticle has a size of between about 1 and about 1000 micron, optionally wherein
the diameter of the sphere is about 0.3 millimetre (mm), the length of the spike is about 0.1 mm, and the general diameter of the spike is about 0.03 mm.

~~11~~12. The microparticle according to claim ~~9~~ 10 or ~~10~~11, wherein
an axis of the rod portion extends about perpendicularly to the outer surface of the body.

~~12~~13. The microparticle according to one of the claims ~~9~~ 10 to ~~11~~12, wherein
the spikes are distributed evenly across the outer surface.

14. The microparticle according to any one of claims 10 to 13, wherein the body has a shape essentially of a sphere, and/or wherein the curved outer surface of the end portion has a shape of a partial sphere.

~~13~~15. A device for producing a microparticle, the device comprising
a first mould; and
a second mould,
wherein

the first mould and the second mould are adapted such that,

——in a closed position, the first mould and the second mould define a micro-cavity, and the first mould and the second mould are pressed against each other to compress a pliable moulding material within the micro-cavity, wherein a shape of the micro-cavity corresponds to a shape of the microparticle, and

——in an open position, one of the first mould and the second mould adheres to the microparticle while the other separates from the microparticle.

~~14. A device for producing a microparticle, the device comprising~~

~~a first mould,~~

~~a second mould,~~

~~wherein~~

~~the first mould and the second mould are adapted such that, in a closed position, the first mould and the second mould define a micro-cavity, a shape of the micro-cavity corresponds to a shape of the microparticle,~~

~~one channel comprising an inlet for receiving a moulding material and an outlet for transferring the moulding material to the micro-cavity,~~

~~wherein~~

~~the first mould and the second mould are further adapted such that, in an open position, one of the first mould and the second mould adheres to the microparticle while the other separates from the microparticle.~~

~~15~~16. The device according to claim ~~13 or 14~~15, wherein each of the first mould and the second mould is produced by milling a block of material with a curved cutting surface of a first cutting tool to produce a body surface, a shape of the body surface corresponds to a shape of a body of the microparticle.

~~16~~17. The device according to claim ~~15~~16, wherein the block of material is further milled with a partial cone cutting surface of a second cutting tool to produce a rod surface, a shape of the rod surface corresponds to a surface of a rod surface of a spike of the microparticle.

~~17~~18. The device according to claim ~~16~~17, wherein

the block of material is further milled with a curved cutting surface of a third cutting tool to produce an end portion rod surface, a shape of the end portion corresponds to an end portion of the spike of the microparticle.

19. The device of any one of claims 15 to 18, wherein the first mould comprises an inner surface including a mould-body surface and several mould-spike surfaces with several partial mould-spike surfaces and/or wherein the second mould comprises an inner surface including a mould-body surface and several mould-spike surfaces with several partial mould-spike surfaces.

20. The method according to claim 19, wherein a shape of the mould-body surface of the first mould and a shape of the mould-body surface of the second mould correspond to the shape of the microparticle.

~~18. A device for producing a microparticle, the device comprising~~

~~a die comprising an orifice with a profile that is essentially the same as a profile of the microparticle,~~

~~a pressing device for pressing a moulding material and the die toward each other, and~~

~~a cutting device for cutting the moulding material that comes out of the orifice, wherein the cut material forms a microparticle.~~