## CLAIMS

1. A device for extracting a beverage ingredient by supplying an extraction liquid such as heated water into in a pod, said pod (3, 3') comprising :

- a pod body (31), said pod body comprising :

. a side wall (311) and a bottom wall (313) defining a chamber, said chamber extending axially between the bottom and a top opening (312),

. a circumferential annular flange (314) projecting radially outward from the top opening, said flange comprising an upper surface opposite to the chamber with respect to the opening,

said pod body containing a beverage ingredient (33),

and

- a top lid (32) attached to the upper surface of the circumferential flange, said top lid closing the top opening of the pod body,

wherein said device comprises :

- upstream and downstream pod enclosing parts (1, 2) relatively translatable along a longitudinal axis (XX') between an open position for inserting and/or ejecting the pod (3) and a closed position for forming an extraction chamber (5) enclosing the pod during extraction,

- the upstream part (2) defining a cage (21) and bearing an upstream piercing arrangement (22) for opening the bottom wall (313) of the pod and a liquid injector (25),

- the downstream part (1) defining a plate transverse to the longitudinal axis (XX'), said plate comprising :

. a downstream plane piercing arrangement (12) for opening the lid (32) of the pod,

and

. a peripheral area (13),

and

- an insertion section (4) for inserting the pod in the device, said insertion section being designed to position the pod with the lid facing the downstream piercing arrangement (12), and

wherein the periphery of the opened end (211) of the cage defined by the upstream enclosing part is covered by a seal (24), and

said seal is configured to be pressed against the peripheral area (13) of the plate of the downstream part when the first and second enclosing parts (1, 2) are in the closed position, and

said seal comprises a ridge (241), said ridge rising in the downstream direction, and characterized in that the peripheral area (13) of the downstream enclosing part comprises a groove (137), said groove presenting a shape conformal to the shape of the ridge of the seal and, when the upstream and downstream pod enclosing parts (1, 2) are in the closed position, the ridge (241) faces said groove (137).

2. Beverage preparation machine comprising an extraction device according to the precedent claim.

3. System comprising an extraction device and a pod,
wherein the pod (3, 3') comprises :
- a pod body (31), said pod body comprising :
  . a side wall (311) and a bottom wall (313) defining a chamber, said chamber extending axially between the bottom and a top opening (312),
  . a circumferential annular flange (314) projecting radially outward from the top opening, said flange comprising an upper surface opposite to the chamber with respect to the opening,
  said pod body containing a beverage ingredient (33),
  and
- a top lid (32) attached to the upper surface of the circumferential flange, said top lid closing the top opening of the pod body,
and

wherein the extraction device is according to any one of Claim 1,

wherein the closed position of the downstream and the upstream enclosing parts (1, 2) a central part of the flange of the pod is pinched by the ridge (241) of the seal of the upstream enclosing part against the peripheral area (13) of the plate of the downstream part.

4. System according to Claim 3, wherein the body (31) and the lid (32) of the pod are made of paper material.

5. System according to Claim 3 or 4, wherein the body (31) is made of a paper material presenting a thickness of at least 100 µm, preferably at least 120 µm.

6. System according to any one of Claims 3-5, wherein the pod body (31) is manufactured by forcing a disc of paper material in a mould.

7. System according to any one of Claims 3-6, wherein the bottom face (3142) of the body flange comprises wrinkles (35), said wrinkles presenting a depth comprised between about 25 µm and 200 µm.

8. Use of a pod (3, 3') for preparing a beverage in a system according to any one of Claims 3 to 7, in a device for extracting a beverage ingredient according to Claim 1 or with a beverage machine according to Claim 2 ,

said pod (3, 3') comprising :

- a pod body (31), said pod body comprising :

. a side wall (311) and a bottom wall (313) defining a chamber, said chamber extending axially between the bottom and a top opening (312),

. a circumferential annular body flange (314) projecting radially outward from the top opening, said body flange comprising a top face (3141) opposite to the chamber with respect to the opening,

said pod body containing a beverage ingredient (33),

and

- a top lid (32) comprising a peripheral annular area (322) attached to the top face (3141) of the body flange, said top lid closing the top opening of the pod body.

9. Use according to the precedent claim wherein the body and the lid of the pod are made of paper material.

10. Use according to the precedent claim, wherein the body is made of a paper material presenting a thickness of at least 100 µm, preferably at least 120 µm.

11. Use according to any one of Claims 8 to 10, wherein the body is made of a paper material presenting a grammage comprised 80 and 150 g/m$^2$.

12. Use according to any one of Claims 8 to 11 wherein the pod body (31) is manufactured by forcing a disc of paper material in a mould.

13. Use according to any one of Claims 8 to 12, wherein the bottom face (315) of the body flange comprises wrinkles (35), said wrinkles presenting a depth comprised between about 25 µm and 200 µm.