【 Scope of Patent Claim 】

【Claim 1】A method for manufacturing vegetable substitute milk using grains, the method comprising the step of,

(1) grinding material selected from the group of grains comprising of quinoa, amaranth and beans after a process selected from roasting, boiling, or boiling after roasting of the selected material.

(2) diffusing the grinded material with purified water for forming a suspension with a high pressure diffusion means for diffusing an oil ingredient of the material and the water, and,

(3) forming the particles of the material of the suspension into nanoparticles preferably below 1000nm with a wet nano-pulverizing means and then molecular binding between the nanoparticles of the material and water molecules of the purified water simultaneously during the pulverizing process of the nano-pulverizing means to produce the vegetable substitute milk.

【Claim 2】The method of claim 1, further comprising a step for peeling the material before the grinding step.

【Claim 3】 The method of claim 1, further comprising a step for mixing a powder of heterogeneous materials before the diffusing step.

【Claim 4】 The method of claim 1, further comprising a mixing step for mixing the heterogeneous suspensions which has passed through the diffusion step, before forming nano-pulverizing step.

【Claim 5】 The method of claim 1, wherein nano-pulverizing step, further comprising the nano-pulverizing means configuring the combination of the means selected from a bead mill, a disk mill, a colloid mill, a high-pressure homogenizer to sequentially reduce the size of the particles and trigger

molecular binding by repeatedly circulating the suspension of the material.

【Claim 6】 A system apparatus for manufacturing a vegetable substitute milk using grains, the system comprising of,

(1) a component for primary grinding material selected from the group of grains comprising quinoa, amaranth and beans after a process selected from roasting, boiling, or boiling after roasting of the selected material.

(2) a component of high pressure diffusion means for forming a suspension by diffusing an oil ingredient of the material and the water, and,

(3) a component comprising of at least one of wet nano-pulverizing means for grinding the particles of the material of the suspension into nanoparticles preferably 1,000nm

and then binding molecules between the nanoparticles of the material and water molecules of the purified water simultaneously during the pulverizing process of the wet nano-pulverizing means to produce the vegetable substitute milk.

【Claim 7】 The system apparatus of claim 6, further comprising a mixing means for mixing a powder or a suspension of heterogeneous grain materials

【Claim 8】 The system apparatus of claim 6, wherein the nano-pulverizing means further comprising a combination of selected apparatus from a bead mill, a high-pressure valve means, a high-speed stirring means, a high-pressure homogenizing means, and a colloid mill.

【Claim 9】 The system apparatus of claim 6, further comprising additional constitution of homogenizing for selectively mixing a fine powder, a juice, or an extract of the material that is added to produce heterogeneous beverages, depending on the ratio of design of the vegetable substitute milk to be manufactured.

【Claim 10】The system apparatus of claim 6, wherein the molecular binding means further comprising a plurality of bead mills for circulating the suspension of material in order from the bigger-sized bead mill to the smaller-sized bead mill to sequentially reduce the size of particles of the material.

【Claim 11】The system apparatus of claim 6, further comprising a means for peeling the material before the primary grinding means.