

ALIEN PROPERTY CUSTODIAN

PROCESS FOR DRYING BY CENTRIFUGAL ACTION OF JUICY MATERIALS WITH PARTICULAR REGARD TO OLIVES

Elio Adolfo Peroglio, Sanseverino Marche, Italy;
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This invention has for its object to provide a process for drying by centrifugal action of juicy materials, by such a denomination being designed the materials composed of liquid and solid parts, more or less intimately mixed and united. This class of materials comprehends all fruits with particular regard to olives. The scope of the process is to provide the practically complete drying of such materials, namely the extraction of the liquid parts.

The drying by centrifugal means of these materials, olives in particular, has been tried many times; but the practical results obtained were so poor, that the problem is not yet solved and generally it is indicated as insolvable. It is effectively insolvable when we employ the usual process of scission of liquid mixtures by centrifugal action.

By using the process, which is the object of the invention, the problem is totally solved.

This process is based on the following consideration, reached by the inventor subsequent to diligent and numerous observations and experiments: When a material composed of mixed liquid and solid particles is submitted to a centrifugal action, the solid particles, which generally have an higher specific weight than the liquid particles, are exposed to comparatively stronger centrifugal forces, and therefore are the first to reach the peripheral zones; herein, due to the greater distance from the rotation center, they are exposed to even stronger centrifugal forces, with the consequent auto-formation of a highly pressed outer layer of solid material, impeding the way to the liquid material kept behind, and the more rapidly and completely this occurs, the higher is the rotation speed and the stronger the centrifugal action. Therefore while the centrifugal action actually succeeds in separating the liquid from the solid components of the material, the practical result is lost because all liquid remains in the centrifugal drum.

The fundamental characteristic of the process, which is the object of the invention, consists in the fact that special means are put inside the centrifugal drum with the material to be dried, allowing the drainage towards the outside of the liquid collected behind the solid layer or crust formed in the peripheral zones as a consequence of the centrifugal action.

Substantially the drainage means are channels which pass through the solid crust and reach the surface of the centrifugal drum, preferably the peripheral surface of the drum, eventually also one or both the lateral surfaces of its two bases;

these channels may be of any form and section, large, small, and even capillary in dimension.

Furthermore, according to the invention, to speed up the drainage of the liquid, namely its expulsion through these channels, inert matters of a highly specific weight, preferably free from restraints, are placed in the innermost part of the drum, against the inner surface of the mass exposed to the centrifugal action, acting, in consequence of the strong centrifugal force of the rotating drum, upon the mass as radial pistons, constraining the liquid, which is pressed between these inert masses and the outer peripheral layer of solid matter, to an expelling compression in addition to the centrifugal force which already acts upon the same liquid.

As drainage means can be used, i. e., layers of porous materials, as i. e., networks or felted fabrics of human or animal hairs or the like, inside of which the mass is subdivided and enclosed as inside tubes, which are placed in the centrifugal drum, stuffed with the material to be treated, side by side, either parallel to the rotation axis, or in circles normal to this axis, or in both ways. In this case the drainage channels are formed by the substantially capillary cavities of said porous materials. The porous layer or sheet, instead as in the form of a tube can be placed in any other way around the various portions in which the mass is subdivided, i. e., by crossing two bands, placing on the crossing the suitable portion of the mass, and thereafter reversing on the mass the four ends of the two bands. The fibrous layer may also simply be mixed with the mass in small pieces or in the form of ribbons etc.

The same result may be obtained by suitably adapting the holed surface of the drum, i. e., forming on it deep furrows having the section of a V or a wedge. The summit of each V or wedge enter in the inner part of the mass and plunge in the liquid, while the solid layer accumulates itself in the cavities existing between adjacent V or wedges: in this manner the liquid goes out through the holes of the summits and sides of the V or wedges.

Evidently many other embodiments are possible. The drum may also be placed vertically, and the liquid drained through the bottom.

As for the inert heavy bodies acting from the inside as radial pistons, may be used, i. e., bars or, even better, lead plates, eventually with bevelled edges, in order that they may run in a radial manner keeping some continuity in their outer surface. Instead of plates, bags full of gun shots, or other equivalent means can be used. There-

fore, instead of lead, iron or other material, according to the different applications, may be used.

As above stated, this process provides a particularly useful and interesting application in the production of olive oil, wherein oil is produced by various types of presses, all effort to extract oil by centrifugal means having failed. With the process, which is the object of this invention, all the bulky installations of the presses of "first pressing," which is used to day at a waste of money and labor, to express the first abundant liquid contents from the olives, and then to pass the pulp to the strong pression of the "second pressing." In the system of "first pressing" one needs in fact numerous filtering disks in pile, whose charging and maintainance in pression and discharge requires long time, hard labor, great efforts and cares and the use of stales, levers, etc. Furthermore, generally it is not possible to pass the pulp to the "second pressing" without a previous grounding of the same, while with

the process according to the invention the pulp remaining after the centrifugal operation goes directly from the centrifugal apparatus to the press of the "second pressing." This means an enormous saving of filtering disks and the elimination of the danger of rancidity and formation of free fatty acid due to the sediments setting on the disks, sediments which can not be easily eliminated.

Of course the process, which is the object of the invention, may be applied not only to the olive oil industry but to all other cases where it may be useful and advantageous, without going beyond the concern and protection of the present patent. Therefore it is also obvious that the governing examples above described do not limit in any way the invention, namely any other application adhering to the extremes of the present invention will go under the concern and protection of this patent.

ELIO ADOLFO PEROGIO.