What about 'Melon' Patents

Recent approval by the European Patent Office (EPO) of a number of patent applications on food products, including the patent EP1587933 rewarded to Syngenta on melons "with a pleasant taste", and the patent EP1962578 rewarded to Monsanto on "closterovirus-resistant" melon plants, reopened the debate of patents on foodstuff, and why not animal varieties.

Once again we see the appraisal of non-governmental organisations (NGOs) objecting to the practice of the EPO of awarding companies like Syngenta and Monsanto with monopolies on plants as well as to the food products thereof, and accordingly depriving farmers and farmer organisations in developing countries from these innovations in agriculture.

Where EP1962578 is still the object of an ongoing opposition procedure before the EPO, with a coalition of NGOs acting under the name 'No Patents on Seeds' as one of the opponents, the opposition to the 'pleasant tasting' melons (EP1587933) came recently to an end. In both cases one of the grounds used by the opponents has to do with the fact that the claimed subject-matter would relate to plant varieties, or essentially biological processes for the production of plants, which are excluded from patentability by Article 53(b) EPC.

Prior to addressing the grounds for the decision of the opposition division in maintaining the 'pleasant-tasting' melon patent, it seems appropriate to highlight the legal framework of the European Patent Convention (EPC) dealing with biotechnological inventions, and in particular inventions on plants and animals. To understand the reasoning of the EPO in allowing the foregoing melon patents, particular reference to Rule 26(4) is made setting out that a plant variety is any plant grouping within a single botanical taxon of the lowest known rank, which grouping, irrespective of whether the conditions for the grant of

a plant variety right are fully met, can be:

(a) defined by the expression of the characteristics that results from a given genotype or combination of genotypes,

(b) distinguished from any other plant grouping by the expression of at least one of the said characteristics, and

(c)considered as a unit with regard to its suitability for being propagated unchanged.

But also Rule 26(5) should be taken into consideration when determining the patentability of the biological process involved. Within the context of Article 53(b) EPC, a process for the production of plants or animals is essentially biological if it consists entirely of natural phenomena such as crossing or selection. Please note in this respect the 'or' wording of article 53(b), meaning that a biological process within a patent specification may be excluded in that it entirely consists of natural phenomena, which should not have an automatic bearing on the products (plants) thus obtained.

As this appears to be a recurring debate, further interpretation of the basic framework of the European Patent Convention can be found in decisions of the EPO's Enlarged Board of Appeal, with the recent 'broccoli' case (G2/07) and the 'tomato' case (G1/08). In making decisions, the Board is always guided by the general principle that patents can be granted in all technical fields, including biotechnology, in as far the application provides a technical solution to a technical problem. Only when this first hurdle on the technical character of the invention is taken, should the further requirements on novelty, inventiveness and industrial applicability be checked. As such, when allowing patents on plants, or processes for the production of plants, one should always seek to find whether the patent application concerns a technical development

which is new and industrially applicable and involves an inventive step. Evidently, this technical aspect of the invention must be reflected in the claims, through the technical characteristics of the product (plant) or process involved.

By zooming in on the technical contribution of the invention over the art, one in principle tackles the fear of allowing patents claims to plant varieties per se from the start, as it is a priori to be expected that the technical feasibility of the invention is not going to be confined to a particular plant variety per se. Turning back to the general patent principles in the plant field, such technical development typically concerns characteristics such as improvements in yield, higher nutritional value or resistance to drought and pests. In the majority of patents on plants, this technical development is based on genetic modification of a plant by genetic engineering techniques, but also other technical means could form the basis for the technical development. One of such techniques is marker-assisted selection (MAS), wherein plant lines containing the desired substance / characteristic at a high level are selected by means of these markers and used in plant breeding.

All of the foregoing elements can be found in the decision of the opposition division to maintain the 'pleasant-tasting' melon patent EP1587933. In said patent, the problem addressed by the application relates to the fact that for certain fruits of the melon plant a major part of the total fruit fresh weight is not edible because of the low pH and low sugar content. It has accordingly been an object of the present invention to alter the taste of the fruits of the melon plant addressing the foregoing problem. In order to avoid claims directed to plant varieties per se, the applicant fully focused on the technical elements characterising the melon plant. As such, and confirmed in the decision of the opposition division, claims directed thereto are not excluded from patentability under Art 53(b) EPC even though they may embrace plant varieties.

In the present case, the claim is drawn to a plant characterised by parameters (e.g. sugar content, pH, citric acid content, and the ratio of citric acid to malic acid). The claim is not directed to plant varieties. While some of the exemplified melon plants may be varieties or may fulfil the requirements of Rule 26(4) EPC, the teaching of the patent at issue is not limited to these plants, since the patent shows the possibility to obtain plants with the foregoing features in different genetic backgrounds, and by using a variety of different melons as starting material. According to the opposition division it is also not evident that the plants having said characteristics are suitable to be propagated unchanged, as required by Rule 26(4) EPC. For those reasons, the opposition division came to the conclusion that the claims do not relate to plant varieties, and are not excluded from patentability by Art 53(b) EPC.

The inventive activity underlying the presently claimed plants can be found in the combination of features characterising the fruits of the melon plant, as claimed with, in particular, the ratio of citric to malic acid. In the opinion of the opposition division, there was nothing in the cited prior art to suggest that the ratio of citric to malic acid, in combination with the other characteristics on pH and sugar content, would have such a favourable influence on the acid perceptions of the melons. For said reasons the opposition division concluded that the patent, and the invention to which it relates, meet all the requirements of the EPC.

In other words the recent decision in the 'pleasant-tasting' melon patent confirms the practice of the EPO in allowing patents on plants in as far the claims directed thereto are based on the technical contribution of the invention over the art, excluding claims to plant varieties per se, even though they may embrace plant varieties.

This brings us to my final question: are the facts about the "closterovirus-resistant melon" patent that much different? The Monsanto patent (EP1962578) is directed to a melon plant resistant to the Cucurbit yellow stunting disorder virus (CYSDV) by the introgression of a CYSDV-resistance–conferring QTL or a CYSDV-resistance-conferring part thereof linked to a genetic marker E11/M49-239. Where indeed the gene responsible for the resistance was already known in the art, previous efforts to introduce this genetic characteristic in commercial cultivars have been unsuccessful. It has accordingly been an object of the present invention to determine linkage of this genetic element with a marker that can be used in marker-assisted selection procedures to enable the introgression of the CYSDV resistance in commercial cultivars, and providing a marker that allows easy traceability of the new resistant plants.

As such, in my opinion, this case is nothing more than a further MAS patent, and accordingly fits with the recent decisions on the broccoli and tomato patents. In said decisions, the EPO has hitherto held MAS to be a technical process and therefore patentable, because in addition to conventional breeding steps it also involves the use of marker genes to select particular characteristics. I accordingly do not expect to see a different outcome in the present opposition, and hope to get further confirmation that the patents will always be granted for technical solutions to specific technical problems.

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