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PATENT PROTECTION FOR THE FOOD INDUSTRY IN CHINA

The food industry is an innovative industry. Food manufacturers and their suppliers therefore have a great interest in protecting new developments. This is especially true in the Chinese market, where the risk of imitation is still considerable. In the following, we therefore provide an overview of the extent to which new products, ingredients, equipment and manufacturing processes are amenable to patent protection under Chinese regulations. In doing so, we also address the question of the patentability of novel food.

1. General Patenting Requirements and Patent Claims

In general, under Chinese patent law, either a product patent or protection of a process can be considered. Substance protection for food may be subject to certain restrictions, as discussed under Sec. 2.

As a basic concept, Chinese patent law also requires a task which is then technically solved by the patented invention. According to general principles of patent law, the patenting of a substance requires that the new substance, i.e. the new foodstuff, has properties by virtue of which it acts in a superior manner to comparable known substances when used (technical progress) and that this superiority of the properties or effects of the new substance over those of comparable known substances was not obvious according to the state of science and experience at the time of the patent application (inventive step).

Insofar as the innovation does not result in a new substance identifiable by its chemical structural formula or scientific name and, if applicable, it cannot be reliably identified by the specification of physico-chemical properties, the new foodstuff can also be determined in the patent application by a "product by process claim". These claims are typically identifiable by the phrase "obtainable by" or "obtainable by."

2. Exclusions of Patentability

According to Art. 25 No. 4 of the Chinese Patent Law as amended on 17 October 2020, animal and plant varieties are excluded from patent protection.

In Chinese patent law, there is moreover a general reservation in Art. 5 that no patent shall be granted for an invention that violates laws or social morality or harms the public interest. This general reservation is concretized in Art. 5 para 2 Patent Law for inventions based on genetic resources, which are therefore understood to be generally excluded from patent protection.

Although China disallows animal and plant patents, however, methods for producing or breeding genetically modified animals or plants may be patentable (see e.g., CN101494969B and CN1620506B). Furthermore, components and axillary methods for producing GM varieties such as genes, promoters and transformation methods are patentable.

According to the Chinese Patent Examination Guidelines, non-biological processes related to animal and plant production are patentable. Microorganisms and microbiological processes are generally patentable. On the other hand, no patents are granted on dishes and cooking methods.

The term microorganisms includes, but is not limited to, bacteria, fungi, viruses, and algae. A naturally occurring microorganism can only be discovered, but not invented, and is therefore not patentable. Patentability requires that the microorganism be isolated in pure culture and have an industrial utility.

Transgenic animals or plants obtained by recombination of DNA or genetic engineering are still to be considered animal or plant species in the sense of Art. 25 Patent Law and thus excluded from patent protection.

3. Novel Food

The question of patent protection is also of particular interest in connection with novel food. In China, there is a special approval procedure for food with new raw materials as well as novel additives. Novel food products as defined by Chinese regulations include:

1) The animals, plants and microorganisms that are not traditionally consumed in China, including animals, plants, bacteria, macro fungi, and algae;
2) The food raw materials separated from animals, plants and microorganisms that are not traditionally consumed in China;
3) The food raw materials whose original ingredients or structures change due to the new production techniques;
4) New varieties of microorganism used in food processing;
5) Others (such as the new food raw materials after chemical synthesis).

Novel food products and ingredients approved in China in 2019 include e.g. Lactobacillus curvatus, Ashitaba, and loquat flower.

Some, but not all, of these subcategories of novel foods may also be eligible for patent protection under the principles applicable in China, such as items 3 and 5. In contrast, animal products under item 2 are regularly excluded from patent protection because they are mere discoveries but not inventions. Although there is a certain factual connection between the concept of novel food and the patentability requirements, it is by no means the case that every novel food can be patented. Rather, it must be examined on a case-by-case basis according to the principles of patent law whether the manufacturing process, certain ingredients or the food as such are patentable.

4. Machines and Devices

Patent protection for machines, plants and devices for the production, processing or packaging of food is possible under Chinese patent law. The general principles of patent law apply here.

Please contact us if you any questions about IP protection in the food industry, novel food or related topics: snb@snblaw.com.

Table 1: List of Novel Food ingredients Approved by China Over the Years

Year	Name of Novel Food Ingredients
2008	Lactobacillus acidophilus (strain number: DSM13241), sodium hyaluronate, lutein ester, L-arabinose, Acanthopanax senticosus, aloe vera gel, galactooligosaccharides, Lactobacillus paracasei (strain number: GM080, GMNL-33), Lactobacillus acidophilus (strain number: R0052), Lactobacillus rhamnosus (strain number: R0011), hydrolyzed egg yolk powder, isomalt, Lactobacillus plantarum (strain number: 299v), Lactobacillus plantarum (strain number: CGMCC NO.1258), plant stanol esters, oligosaccharides, bead peptide powder
2009	Cordyceps militaris, inulin, polyfructose, γ-aminobutyric acid, colostrum basic protein powder, conjugated linoleic acid, conjugated linoleic acid glyceride, Lactobacillus plantarum (strain number: ST-III), Eucommia Seed oil, tea seed oil, salt algae and extract, fish oil and extract, diglyceride oil, earth protein, milk mineral salt, milk alkaline protein
2010	DHA algae oil, cottonseed oligosaccharides, phytosterol esters, phytosterols, arachidonic acid oils, Chinese cabbage, royal rice oil, golden tea, Xianmai vortex flower (small black medicine), noni pulp, yeast β-glucan, snow lotus culture, sucrose polyester, corn oligopeptide powder, phosphatidylserine, Haematococcus pluvialis, epigallocatechin gallate, Propionibacterium fischeri subsp.
2011	Samara oil, β-hydroxy-β-methylbutyric acid, ingot maple seed oil, peony seed oil, maca powder, Lactococcus lactis subsp. lactis, Lactococcus lactis subsp. lactis, Lactococcus lactis diacetyl subsp
2012	Mussel polysaccharides, medium-long chain fatty acids, wheat oligopeptides, ginseng (planted), Chlorella protothecoides, medicinal leaves, Moringa oleifera leaves, sucrose polyester, Leuconostoc mesenteri subspecies
2013	Camellia sinensis, Suaeda salsa seed oil, American vine fruit oil, salt shea butter, Guangdong Cordyceps fruiting body, acai fruit, tea mycelia leaf layer layer fermented mycelium, Euglena, 1,6-bis Trisodium Fructose Phosphate, Danfeng Peony Flower, Narrow-line Grain Tea, Almond Oil, Almond-tree Fruit Oil, Green Willow Leaf, Mannose Oligosaccharides, Serpentine Grape Leaf, Krill Oil, Max Kluyveromyces
2014	Chitooligosaccharides, Silybum marianum seed oil, Willow oleracea, Eucommia ulmoides, gorse, gypsum, tagatose, chia seeds, psyllium husk, Lactobacillus reuteri (strain number: DSM17938), Cordyceps militaris, phytostanol ester, tea theanine, tomato seed oil, loquat leaf, arabinogalactan, Hubei Begonia (tea begonia) leaf, bamboo flavonoids, oat β-glucan, Lactobacillus sake, Propionibacterium propioni, xylooligosaccharides (adjusted), Pediococcus lactis, Pediococcus pentosaceus
2015	nothing
2016	Staphylococcus carnosus, Lactobacillus fermentum (strain number: CECT5716), Bifidobacterium breve (strain number: M-16V), Bacillus coagulans, Staphylococcus calves, Staphylococcus xylose
2017	Shea butter, (3R,3'R)-dihydroxy-β-carotene, Bole fruit powder, N-acetylneuraminic acid, cis-15-tetracosenoic acid, broccoli seed water extract, Rice bran fatty alkanol, γ-linolenic acid oil (derived from Cunninghamella echinulata), β-hydroxy-β-methylbutyric acid calcium, Mujiangye Ke
2018	Black fruit gland rib tree fruit, Candida globosa (Gexian rice)
2019	Lactobacillus curvatus, Ashitaba, loquat flower

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