

Some Legal Issues Caused by Identification of Wild Herbal Plants

- Interpretation and Perspectives of Patent Law -



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Presupposition (Definition)

▶ What is **synonym**?

- Synonym means an alias name of a physically same specific plant which has a concrete scientific name (Latin name).

▶ What is **chromosome**?

- Chromosome is an organized structure of DNA and proteins in plant cells. A specific plant has a unique number of its chromosomes.

▶ What is **DNA**?

- DNA is a shortened name of Deoxyribonucleic acid. DNA contains the genetic instructions used in the development and functioning of living beings.

Presupposition (Definition)

► What is **plant related patents**?

- Plant related patents may involve several types of patents on:
 - 1. Artificially made new plant species, including by traditional breeding and bio technological creation and so on;
 - 2. Artificially made new plant varieties, including by traditional breeding and bio technological creation and so on;
 - 3. Methods for creation of said new plant species (1) or new plant varieties (2);
 - 4. Plant extracts or extracted components;
 - 5. Methods for said extraction (4);
 - 6. Application of said plant extracts or extracted components (4) [e.g. cosmetics, Pharmaceuticals];
 - 7. Application of something applicable to a specific plant [e.g. herbicidal compositions];
 - 8. And other related patents.

Hypothetical patent for explanation

- ▶ **Pomato**: new variety of plants made by bio technology
- ▶ **Pomato** is a artificial hybrid of Tomato DNA and Potato.
- ▶ Fruits of **Pomato** are red, fruity and very large.
- ▶ Tubers (roots) of **Pomato** are white, sweet, soft and very large.

Identification by Common name

► Which is Tomato or Potato?



Identification by Latin name

▶ Tomato

- Accepted Latin name: *Lycopersicon esculentum* Miller var. *esculentum*
- Synonym: *Solanum lycopersicum* L.
- However no one can find pure wild *Lycopersicon esculentum* var. *esculentum*.
- Most of existing plants are *Lycopersicon esculentum* cv. or *Lycopersicon esculentum* hybrids (*Solanum lycopersicum* cv. or *Solanum lycopersicum* hybrids).

▶ Potato

- Accepted Latin name: *Solanum tuberosum* L.
- However no one can find pure wild *Solanum tuberosum*.
- Most of existing plants are *Solanum tuberosum* cv. or *Solanum tuberosum* hybrids.

Questions

- ▶ Does anyone know **Lycopersicon esculentum cv. Momotaro**? This cultivar of Tomato is the best Tomato in Japan.
- ▶ Does anyone know **Solanum tuberosum cv. Danshaku**? This cultivar of Potato is well known cultivar in Japan.
- ▶ No one can know how many cultivars of Tomato and Potato exists all over the world.
- ▶ Because there have been thousands of non-registered cultivars.

However

- ▶ A lot of patent which claims and descriptions have been identified by common name like as **Tomato** or **Potato**.

Hypothetical patent again

- ▶ Pomato: new variety of plants made by bio technology
- ▶ Pomato is a artificial hybrid of **Tomato** DNA and **Potato**.
- ▶ Fruits of Pomato are red, fruity and very large.
- ▶ Tubers (roots) of Pomato are white, sweet and very large.

And also

- ▶ Every plant has a unique DNA sequences.
- ▶ Every plants involved in a same Genus may share same piece of DNA sequence but not completely equal.
- ▶ In species level, same to Genus level.
- ▶ Therefore
 - Especially, in the case of plant extract patent or plant composition patent, it shall be examined whether:
 - ▶ a specific plant which has a specific amino-acid sequence is actually containing a function of such extraction or not?
 - ▶ other similar plants such as another cultivar which has a bit different amino-acid sequence are actually containing a function of such extraction or not?

My results

- ▶ A name of a specific plant might be defined by someone subjectively.
- ▶ Even if the specific plant exists physically, the name of the plant is only a name but not the plant itself.
- ▶ If a specific plant can not be identified by the name then the legal validity of a patent which patent claims were described using the plant name may become in doubt.
- ▶ Identification by description of amino-acid sequence involved in DNA of a specific plant is the most concrete way.
- ▶ Confusion in the botanical nomenclature and synonymy of plants can be resolved by adopting DNA based identification.
- ▶ Management of plant DNA database and data matching proceedings of synonyms and DNA data of a specific plant will be very important matter in the near future, because if only a specific nation can govern such a database system then the nation may be able to control every plant related patent at the same time.
- ▶ The DNA database system should be owned and managed by a neutral organization.

Thank you for your attention



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