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.
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 biotechnology
- **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

► Tomato: new variety of plants made by bio technology

► Tomato is a artificial hybrid of Tomato DNA and Potato.

► Fruits of Tomato are red, fruity and very large.

► Tubers (roots) of Tomato are white, sweet and very large.
And also

- Every plant has a unique DNA sequence.
- 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?
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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