Cambia IP Resource
NEWSLETTER
Third Quarter 2003

Patent Search Interfaces: More to Choose From

The Cambia IP patent search engine [Link] caters to a wide variety of people, from plant breeders and biologists to patent attorneys and patent search specialists. In addition, users tend to have a wide range of search engine experience (e.g., knowledge of Boolean syntax) and also have their own personal preferences for the style of interface they prefer. That is why we decided to provide multiple interfaces, so that users are able to choose the interface that suits their level of expertise and personal preferences. There are currently two interfaces available and we are working on a third interface, which should be available shortly. Although the various interface differ in their search INPUT look and feel, they all share the same search RESULTS layout and associated tools (sorting of results, basket of saved patents, etc).

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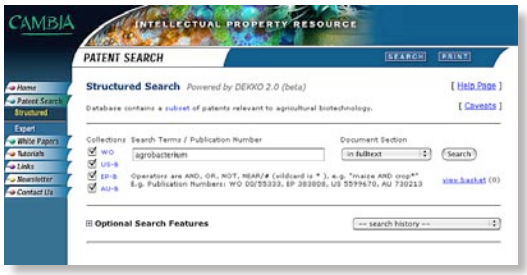
The default interface is the Structured search. Similar to the Google search engine, it has a very simple interface, with a single text input box, a "field" popup menu and a "search" button. The idea was to keep this interface as simple as possible, with first time users in mind. User feedback indicated less experienced users could be overwhelmed if there were too many options to choose from. This interface also automatically "corrects" search syntax if multiple terms are entered without any Boolean operators, by adding "AND" between the terms (except if quotes surround the terms). This mimics the behavior of the Google internet search engine, which has become somewhat of a de-facto standard for search engines.



Once familiar with the initial structured interface, the user can explore some of the optional features of the interface by expanding the "optional features" tab. This provides an additional set of text input boxes with Boolean popup menus, as well as "restrictions" for date and

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How To Improve Your Patent Searches

One of the most common mistakes users make when searching the patent database is they don't adequately refine their search query and end up having to browse through hundreds of results to identify the few patents which are of interest to them. This is illustrated by the fact that the vast majority of search queries comprise just one or two search words. There are a number of simple strategies that can be employed to create more precise searches and thus return smaller, more specific result lists. In addition to refining the search, there are a number of tools available to assist the user navigate the results list and save them time and effort in identifying the patents of interest.

Refining the Search

Here are a number of tips, which can help refine a search:

- Try a combination of a general term and a topic-specific term, e.g., "fishing AND tackle", which helps remove non-specific matches (like football crash tackle).
- Include synonyms with the OR operator. e.g., " (pole OR rod) AND fishing".
- Specify the field that must contain the search word. e.g. "smallpox in abstract". Restricting the search to a single field does significantly reduce the number of hits but it must be kept in mind that important patents may be missed. Title and Abstract fields are only a very brief description of the main area for the patent, this makes them a good starting point for a search. Subsequent searches should use more specific queries, performed on the full text.

Search Interfaces

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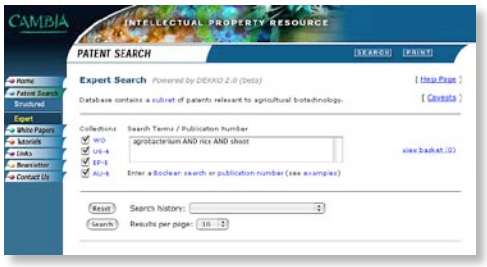
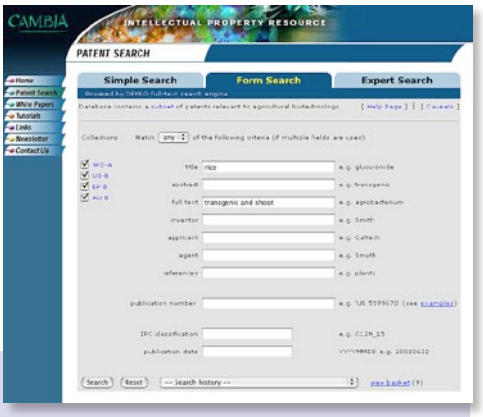
classification fields. The aim of these features is to help the user build more complex Boolean expressions from form-based tools, instead of just relying on



the user to type a single line of Boolean expression on their own.

Experienced searchers tend to find the menu-based interface more of a hindrance than a help, so we provide them with an "expert" interface with just one larger text input box, that allows them to enter Boolean search queries that may span many lines. Currently under development is a third interface that falls somewhere between the Expert and Structured interfaces. This will be a form-based interface and will have separate text input boxes for each of the searchable fields/sections. Thus, it is simpler than the "optional features" version of the Structured interface (no popup menus) but does not provide as much control for refining searches.



Improving Your Patent Searches

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- Use the NEAR operator. Think of two search words that would normally appear in the same sentence when used in the context of the topic of interest. e.g., "smallpox NEAR/9 vaccination", will only find patents where these two words appear within 10 words (9 word gaps/spaces) or less from each other. This tip is especially useful for searching against very long documents (like patents), as it reduces non-topic-specific matches, where the terms may have appeared in completely different parts of the document.
- Vary the near-ness factor for words, depending on whether they are general terms or specific terms. Try using a NEAR/20 between a general term and specific term and use a NEAR/9 between two specific terms. e.g., "(vaccination NEAR/20 smallpox) AND (smallpox NEAR/8 recombinant)"

Navigating The Results List

Once a search has been initiated, the results appear in the lower half of the browser window, with the window "view" automatically scrolling down to the list of "found" patents. There are many options and tools available, which are all described in the Help Pages. The search query is printed in red (and is hyper-linked to the expert interface if the user wishes to refine the search manually), followed by the number of patents which matched the query, along with the number of patents that appear on the first page (default is 10 per page). The user has the option of clicking to the next page or jumping to any of the first 10 pages of results, using the links provided. They may also sort the results by clicking on the column description/heading – clicking again on the currently selected column reverses the sorting order, as indicated by the triangle icon. There is also the option of changing the last column from the following fields: publication date, application or main IPC classification, using the popup menu at the top, right-hand side of the results table.

New on the Site

White Papers

- Update of the Agrobacterium-mediated transformation. [Link]
- Antibiotic resistance genes used for selecting transformed cells [Link]
- Policy paper on intellectual property rights and developing countries [Link]

Patent Datasets and Search Engine - [Link]

- United States applications in text-searchable form, including all applications related to life sciences and chemistry
- Australian granted patents in text-searchable form plus downloadable PDF images
- Release of version 2 of Dekko, the search engine, which has many improvements including unlimited NEAR searches, searching of words with numbers (e.g. S35), and increased performance

Cambia IP Resource in the News

- "Public Sector Collaboration for Agricultural IP Management" Science 301: 173 (11 July 2003) [Link]
- "Public Good in an Absurdly Patented World" Australian Science: August 2003, p. 43. [Link]

Does a Claim to "A Transformed Plant" Cover All Plants?

One of the requirements in patent law is that disclosure should enable a skilled person to make or carry out the claimed invention without undue experimentation. Generally, in biotechnology inventions, the "enablement" requirement is satisfied from a combination of the "Examples" and the "Detailed Description" of the patent text (see How to Read a Patent for more information [Link]). Procedures and knowledge that are well known need not be re-hashed or explicitly taught. But, when the technology of the invention is unpredictable, maybe because it is in its early stages of development, an enabling disclosure needs more teaching. Here we discuss whether a pioneering invention is entitled to a broad scope of protection and a lower standard of enablement. *Plant Genetic Systems N.V. v. DeKalb Genetics Corp*. (Fed.Cir., No. 02-1011, decided 13 Jan 2003) [Link]

Plant Genetic Systems (PGS), now a part of Bayer Crop Science, sued DeKalb, now a part of Monsanto, for infringement of its U.S. Patent No. 5,561,236 [Link]. In particular, DeKalb was accused of selling transgenic, herbicide resistant corn seed. In the '236 patent, PGS claims plants, plant cells, and seeds that are genetically engineered to resist herbicides. In the invention, the plants are transformed with a resistance gene that encodes an acetyl transferase activity capable of inactivating glutamine synthetase inhibitors, such as bialaphos and phosphinothricine.

In its ruling, the Court decided that "the pioneer status of a patented invention does not entitle the patent to a lower standard for judging enablement".

At stake was the question whether enablement as taught in the specification of the patent justified broad coverage of all plants, i.e., dicots and monocots. PGS argued that because the invention was pioneering, the patent claims do not need as much enablement as claims for a non-pioneering invention. The Federal Circuit Court, however, was not swayed. In its ruling, the Court decided that "the pioneer status of a patented invention does not entitle the patent to a lower standard for judging enablement".

Instead, the Court held that at the time of the filing of the original application (1987)

transformed monocots were not amenable to Agrobacterium-based transformation. Moreover, they reasoned that "susceptible to infection and transformation by Agrobacterium and capable of regeneration" would have been understood at the time of filing to exclude monocots.

What do we learn from this court decision? Without the benefit of a legal interpretation of the claims, an analysis of the '236 patent would have concluded that the term "plant" encompassed both dicots and monocots. Now, however, we can apply the holdings of this decision to claims in other patents filed prior to predictable transformation of monocots (early 1990s). Thus, these patents that also claim "Agrobacterium-transformed plants, plant cells or seeds" will likely also only protect dicots.

Relationship Between Agriculture and Health

Over the coming year, the Cambia IP Resource is expanding its datasets to include patent documents in the health field. Although Cambia has an agricultural focus, we recognise that well-being and health, especially immune functions, are inexorably linked to nutrition. Specifically nutritional deficiencies are commonly associated with impaired immune responses and poor vaccination outcomes.

Poor Development of Immune System Results From Nutritional Deficiencies

- Protein-energy malnutrition results in a depletion of phagocytic cells and a reduction in complement levels, two major components in the non-specific immune response, which is the first line of defense.
- Deficiencies in micronutrients, such as vitamins A, C, E, and B-6,

selenium, zinc, iron and copper, also diminish the capability of the non-specific arm of the immune system as evidenced by lower production of factors such as interferons and interleukins.

Malnourished Children Exhibit Increased Susceptibility to Infection

- Between 20-75% of child deaths in a number of Asian and SSA (Sub-Saharan Africa) countries can be attributed to protein-energy malnutrition.
- Measles has as much as a 50% mortality rate in malnourished children.

Immunizations Are Less Effective in Mal- or Under-nourished People

- A healthy immunocompetent individual responds to vaccination or environmental challenge by establishing adequate levels of antibody and a primed population of memory cells that can be called into action the next time the challenge is encountered.
- Both protein-energy malnutrition and micronutrient deficiencies affect the quality of immune responses.
- Cell-mediated immunity (e.g., immunity to TB, Trypanosoma cruzi, Leishmania, virally-infected cells) is depressed, especially in protein-energy malnutrition.
- The humoral immune response is also adversely affected in malnourished individuals.
- Malnourished animals produced low primary and secondary anti-tetanus antibody responses, significantly lower specific antibodies to cholera toxin, measles virus, and pneumococcus.
- Antibody affinities may also be reduced, which can have profound consequences as a low affinity response results in a less effective immune response.

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