



Portrait mondial de la protection des inventions dérivées des algues

Rimouski

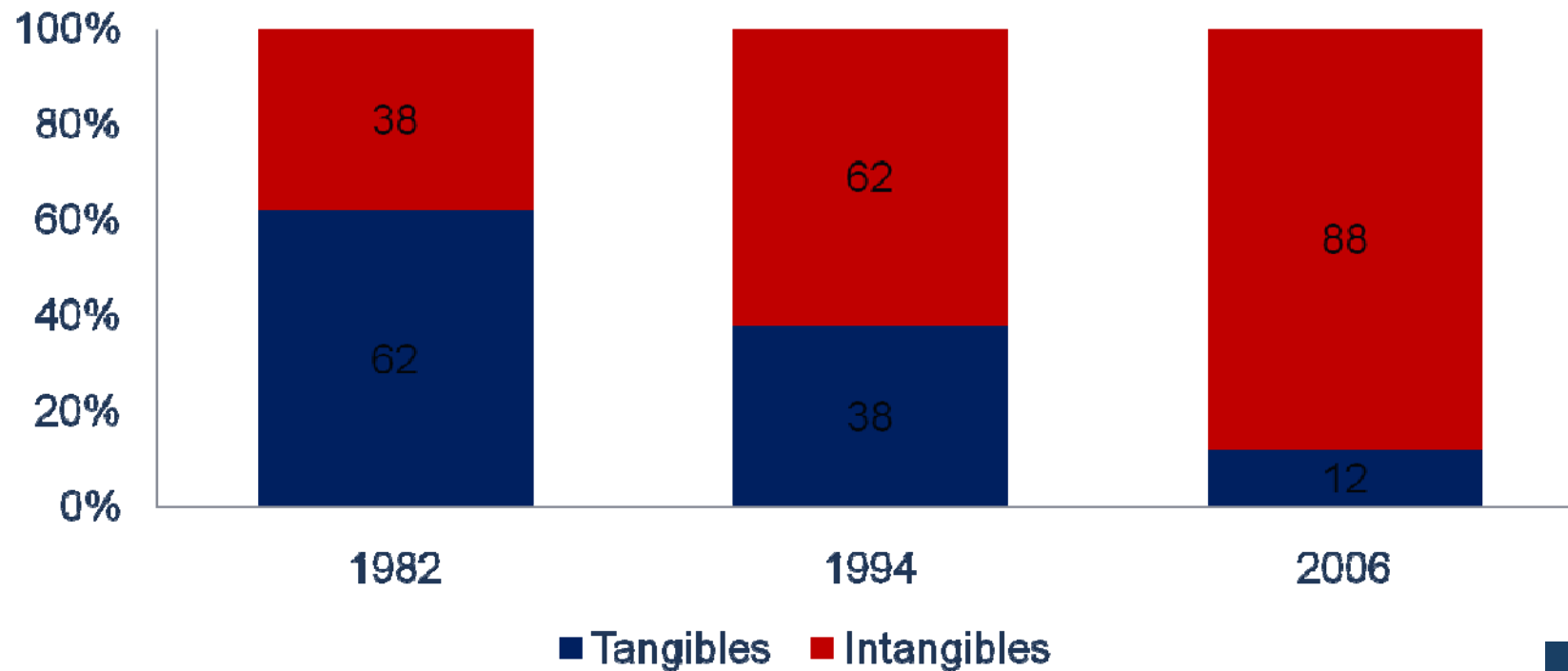
Le 24 mars 2010

Louise G. Bernier, Ph.D. Agent de brevets

Gestion de la PI



Valeur en % des actifs intangibles sur la capitalisation boursière d'entreprises dans le S&P 500



Analyse générale des brevets dérivés des algues



De 2003 à 2010:

4718 FAMILLES DE BREVETS

2 grandes catégories: macroalgues et algues microscopiques.

4 grandes couleurs: Algues bleues, rouges, brunes, et vertes.

Les principaux secteurs d'activité:

Agro-alimentaire

Médical

Cosmétologie

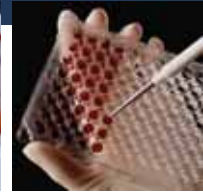
Chimie

Traitement des eaux

Bioénergies

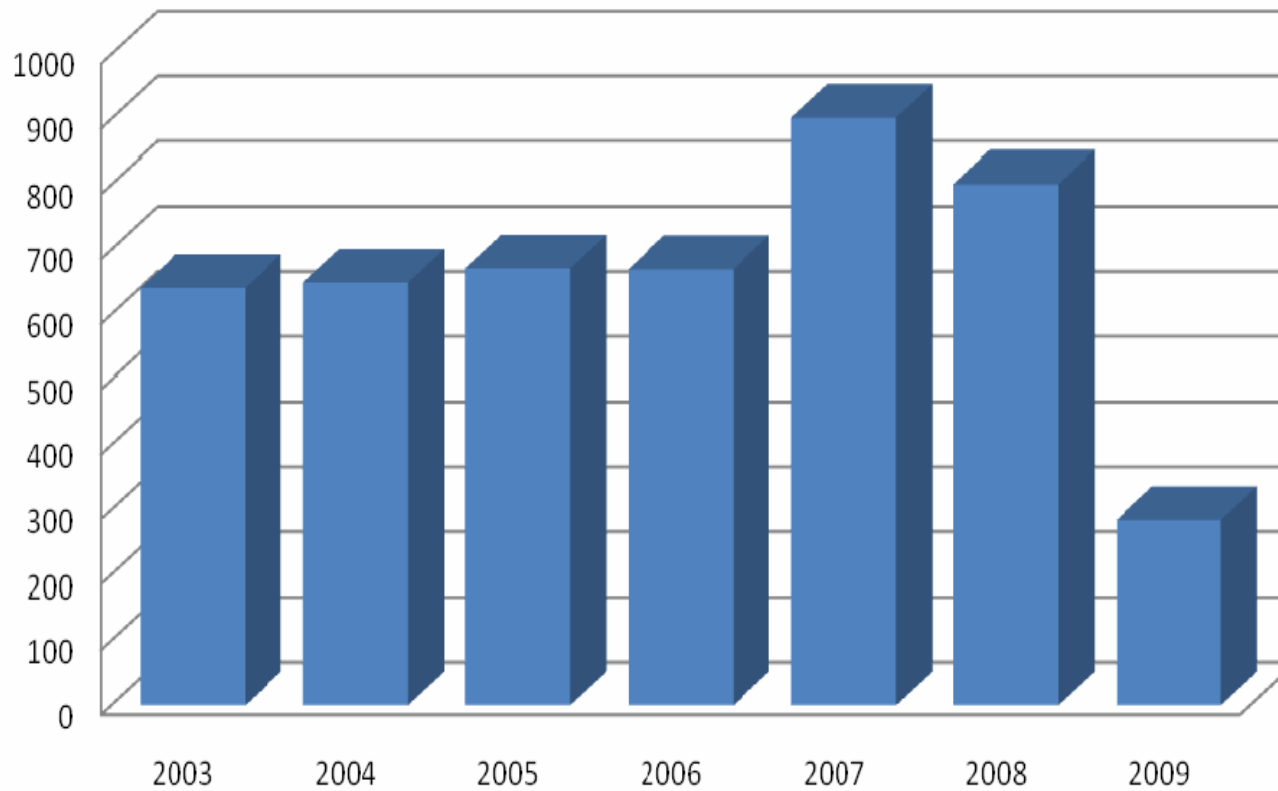
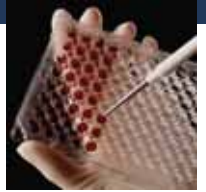
Le dépôt des demandes de brevets

La priorité en matière de brevets

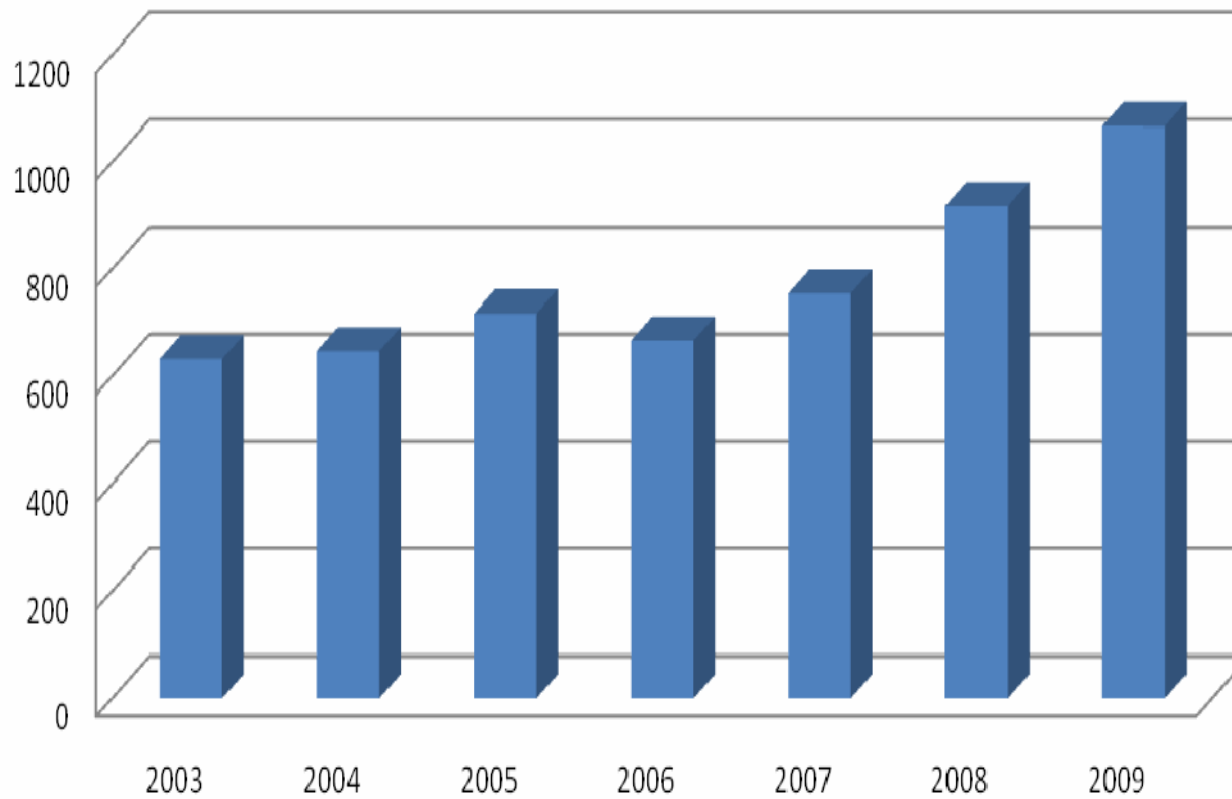
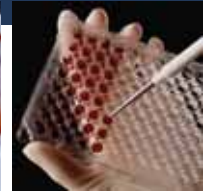


*Patent Cooperation Treaty

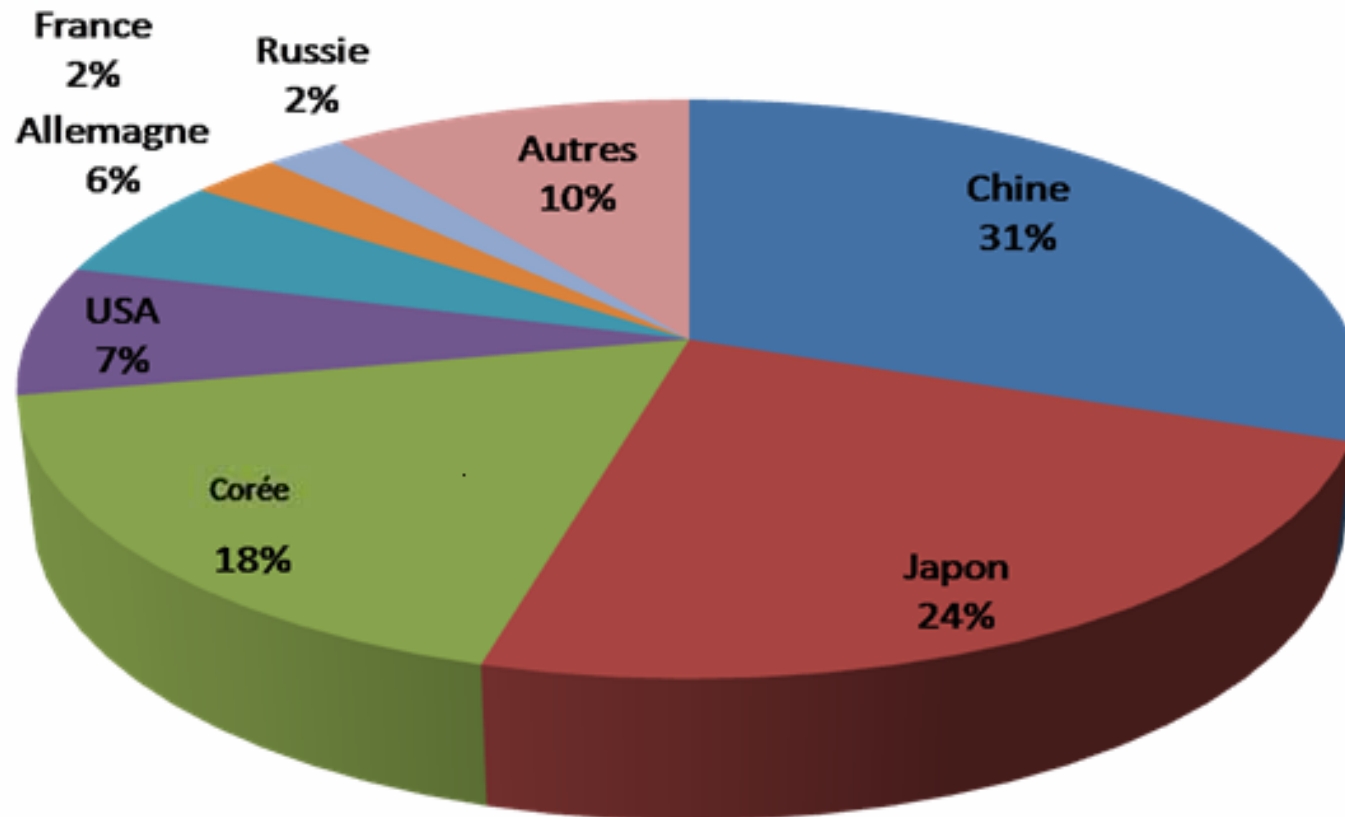
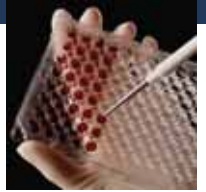
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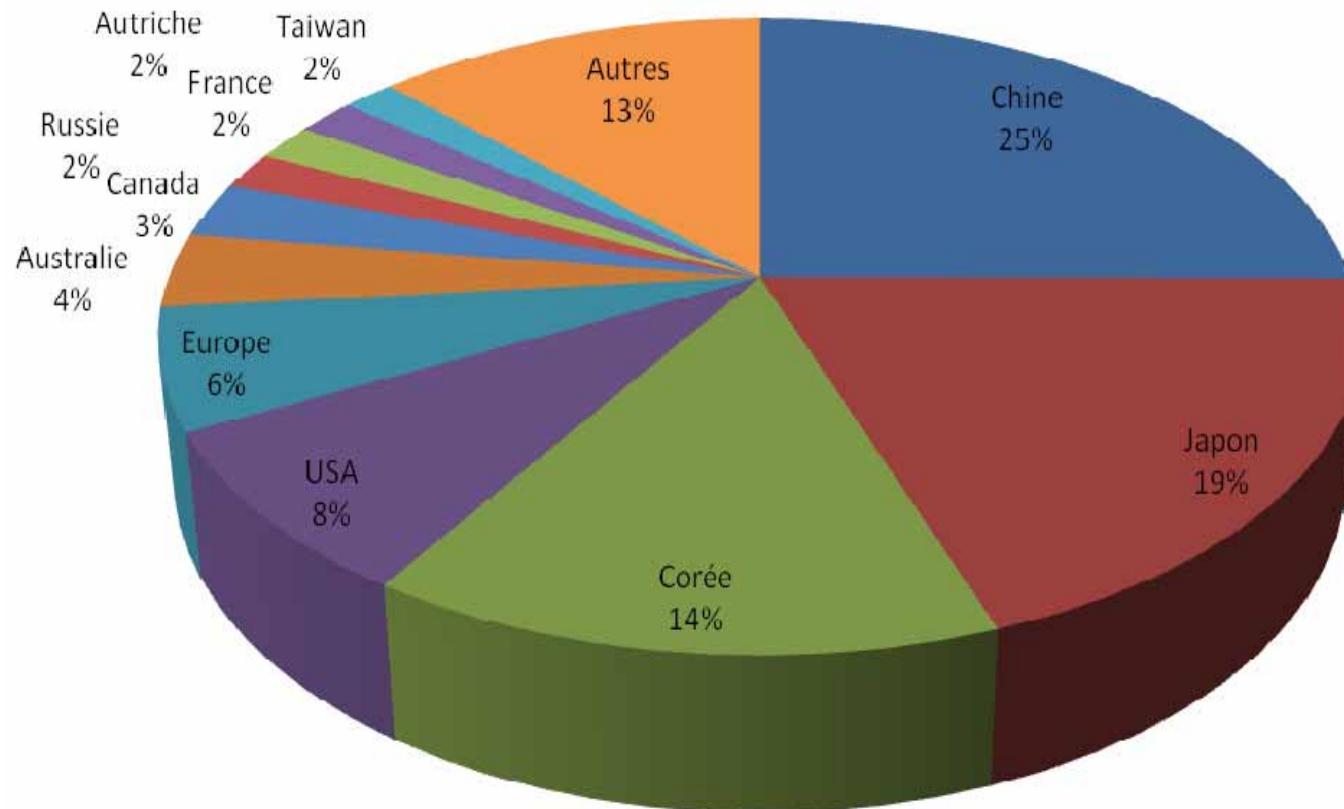
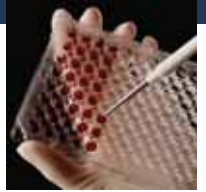
Distribution par année de publication



Distribution par pays de priorité



Distribution par pays de publication



Le rôle du système des brevets



- Pourquoi breveter?

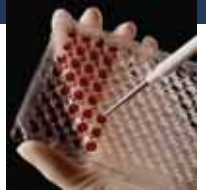
A) Pour exclure les tiers de la fabrication, la vente et l'utilisation;

- Pour exclure les tiers, le brevet doit être délivré (granted)
- Kind code A = publié, B = granted.

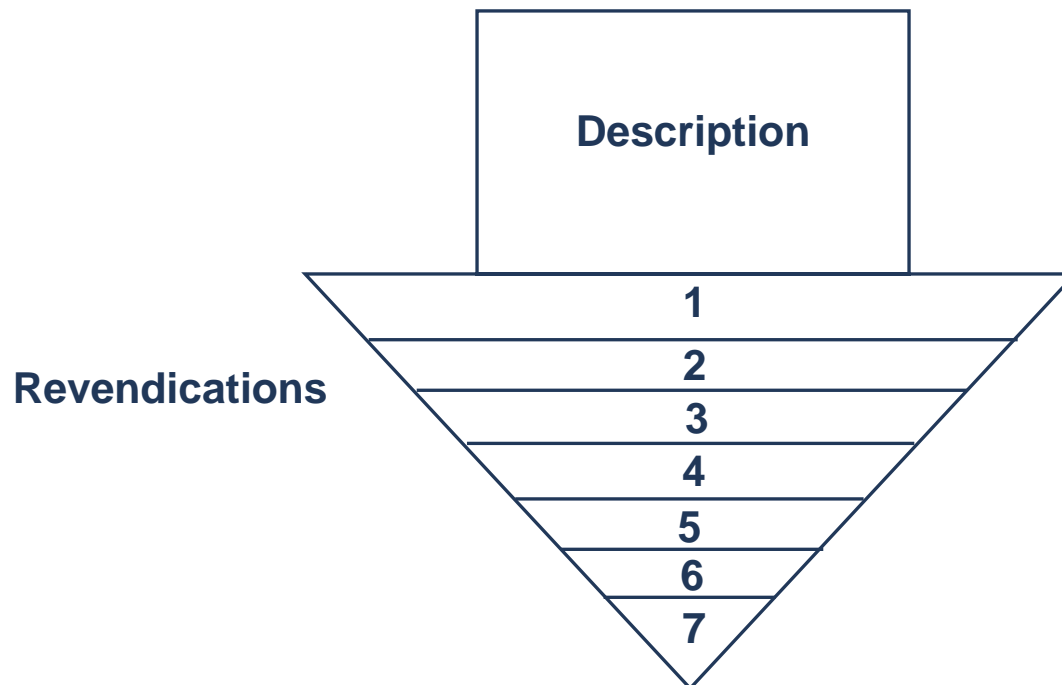
B) Pour donner de la valeur à la compagnie; et

C) Pour empêcher les concurrents, à titre défensif, de nous exclure de notre propre technologie.

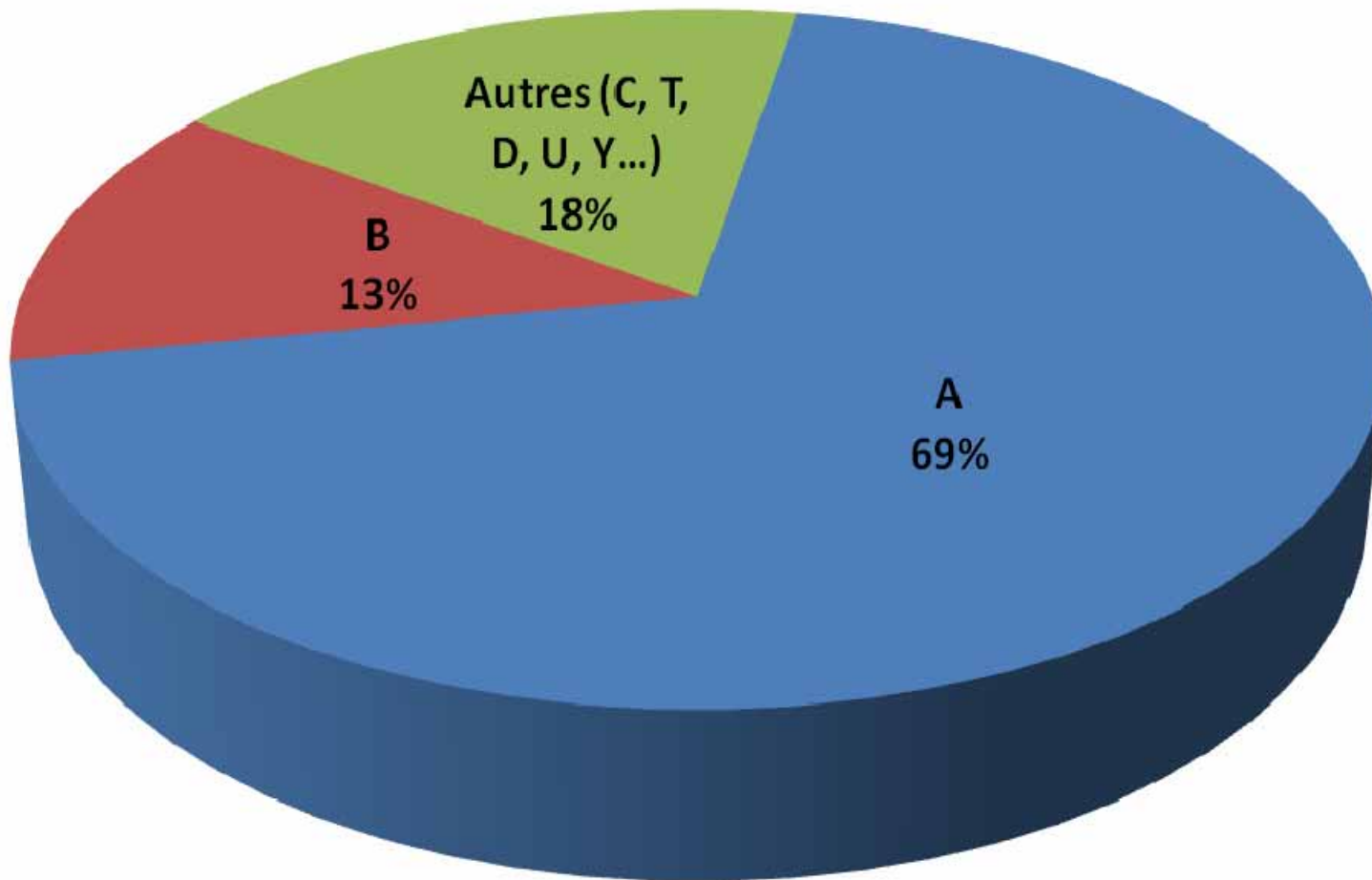
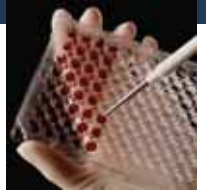
Les revendications



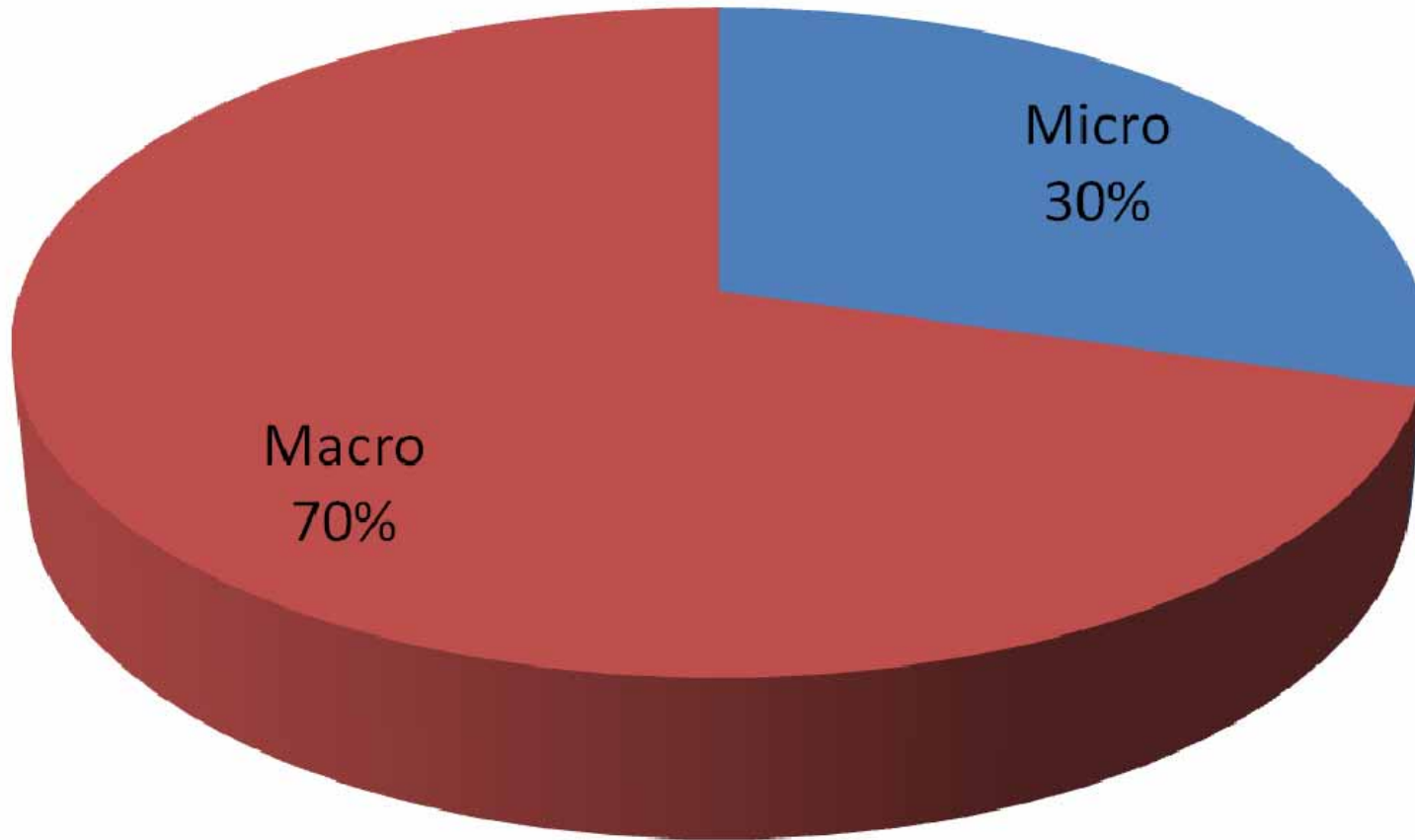
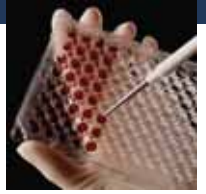
- Les **revendications** constituent la base juridique de la protection d'une invention.
 - Elles délimitent l'étendue de la protection conférée par le brevet.



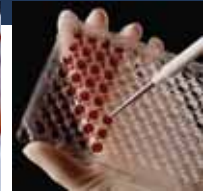
Analyse de “kind codes”



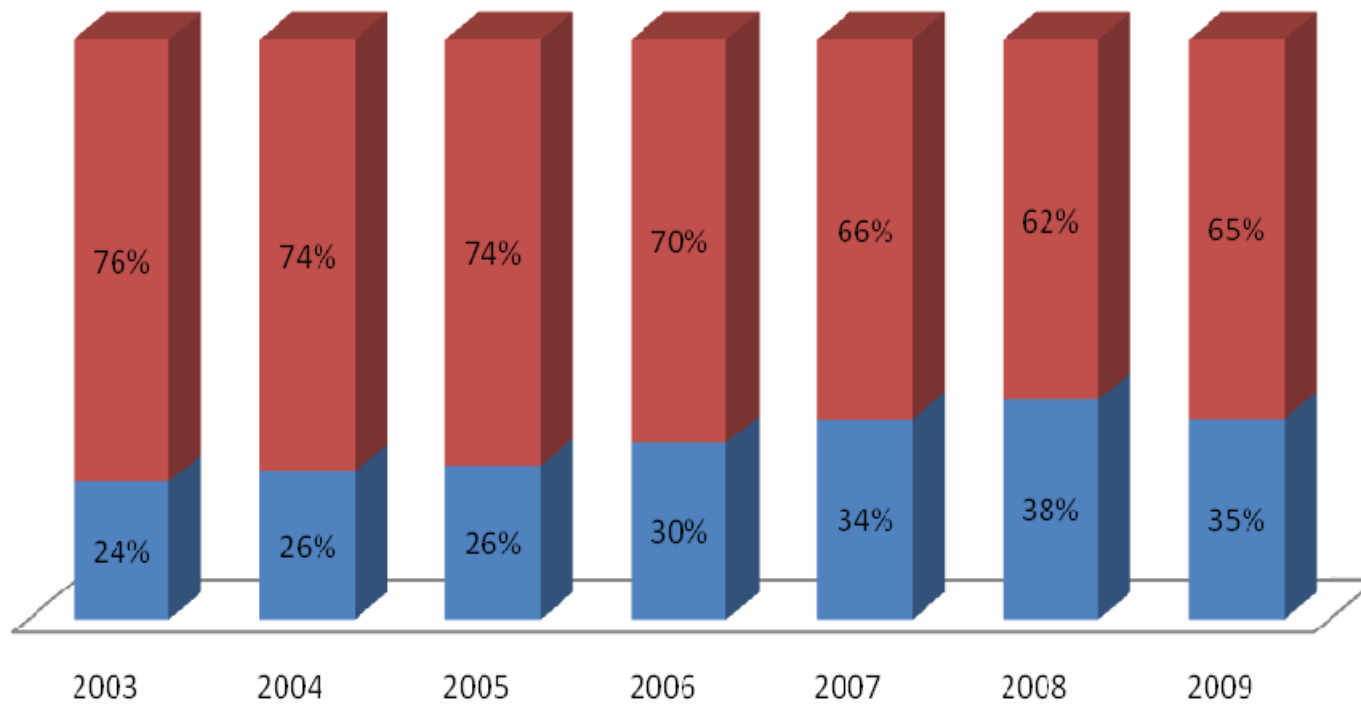
Micro vs Macro



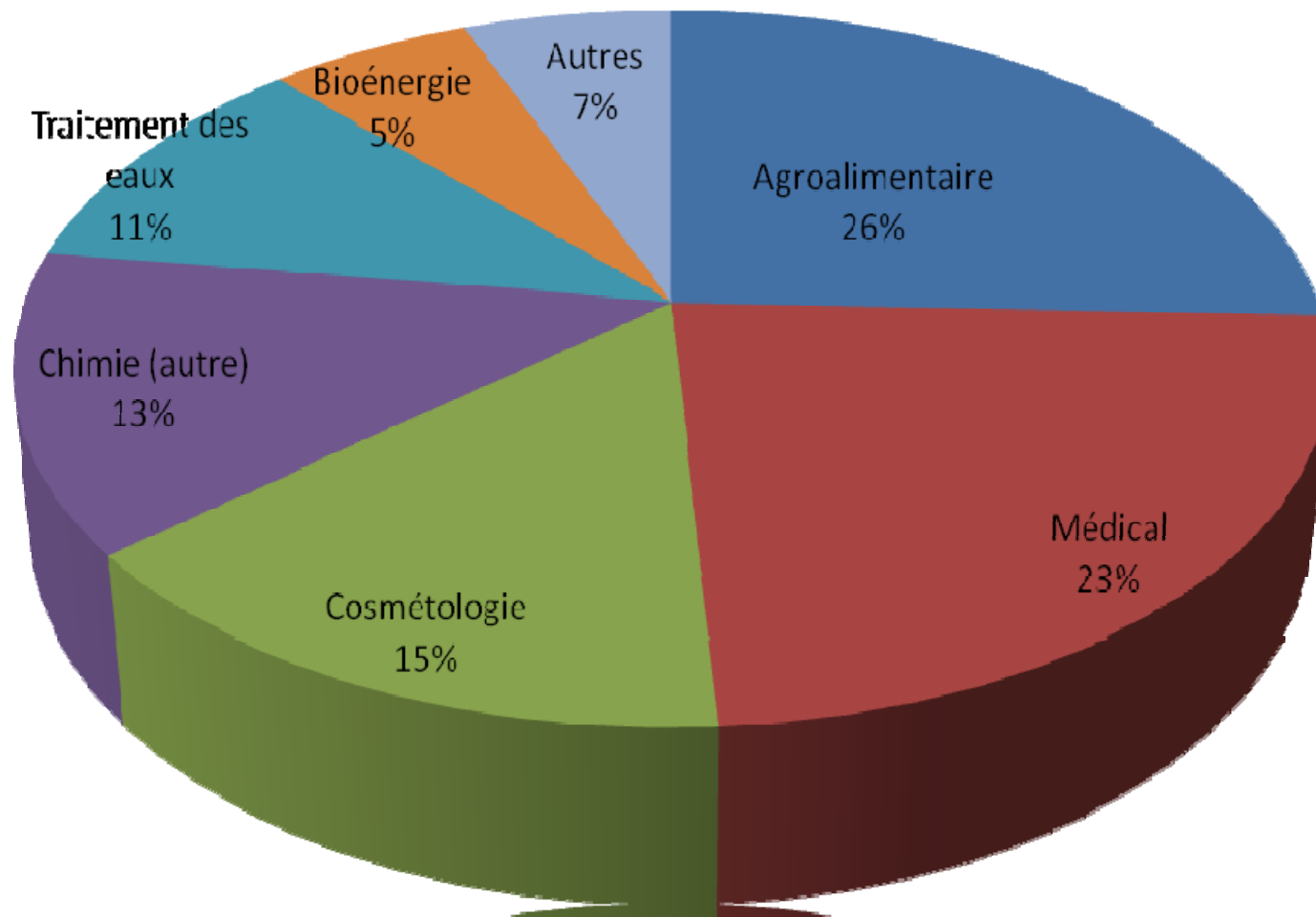
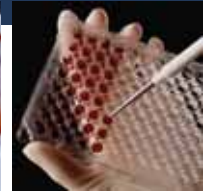
Micro vs Macro : évolution



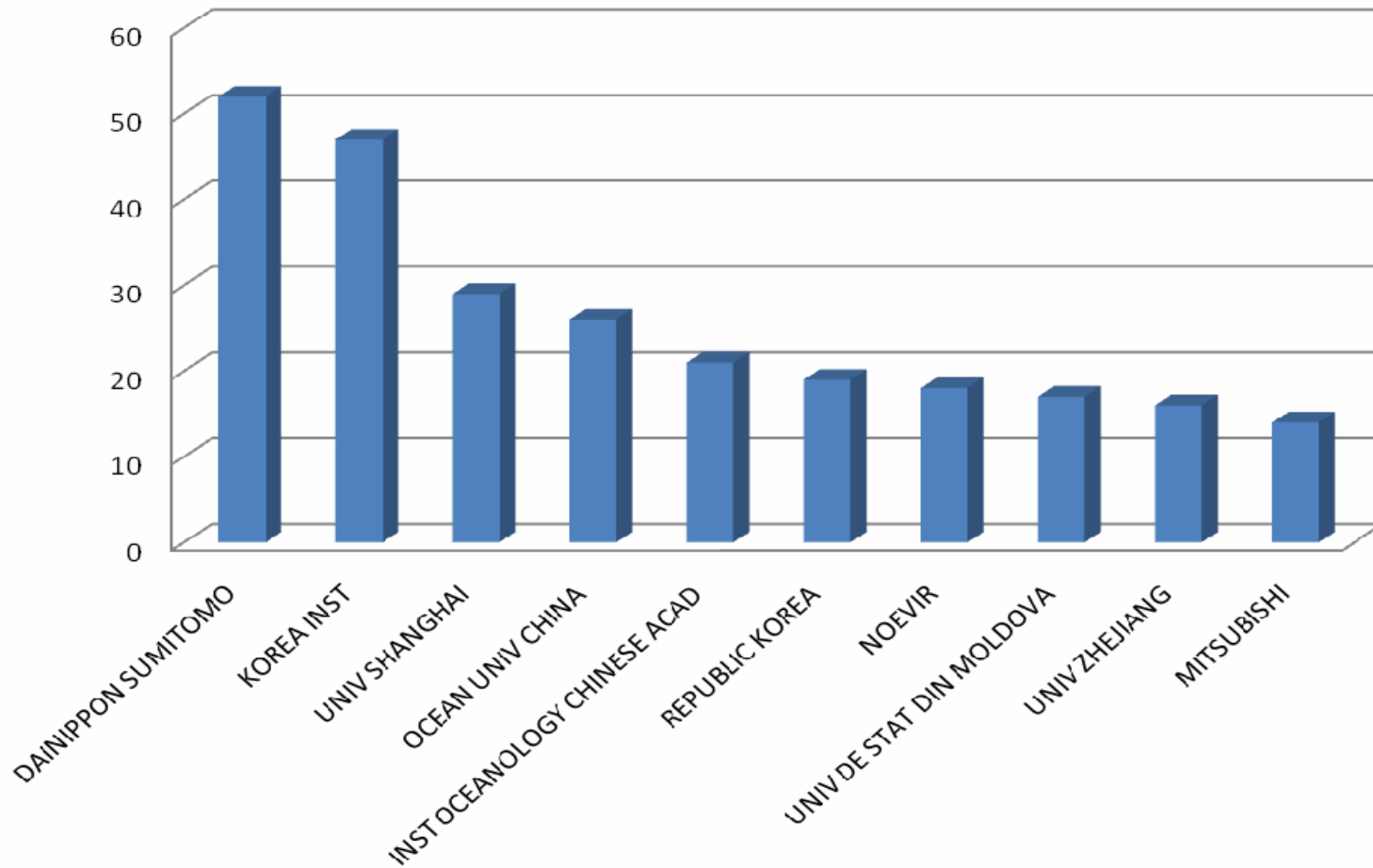
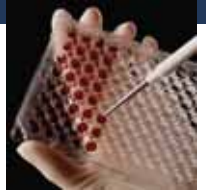
■ Micro ■ Macro



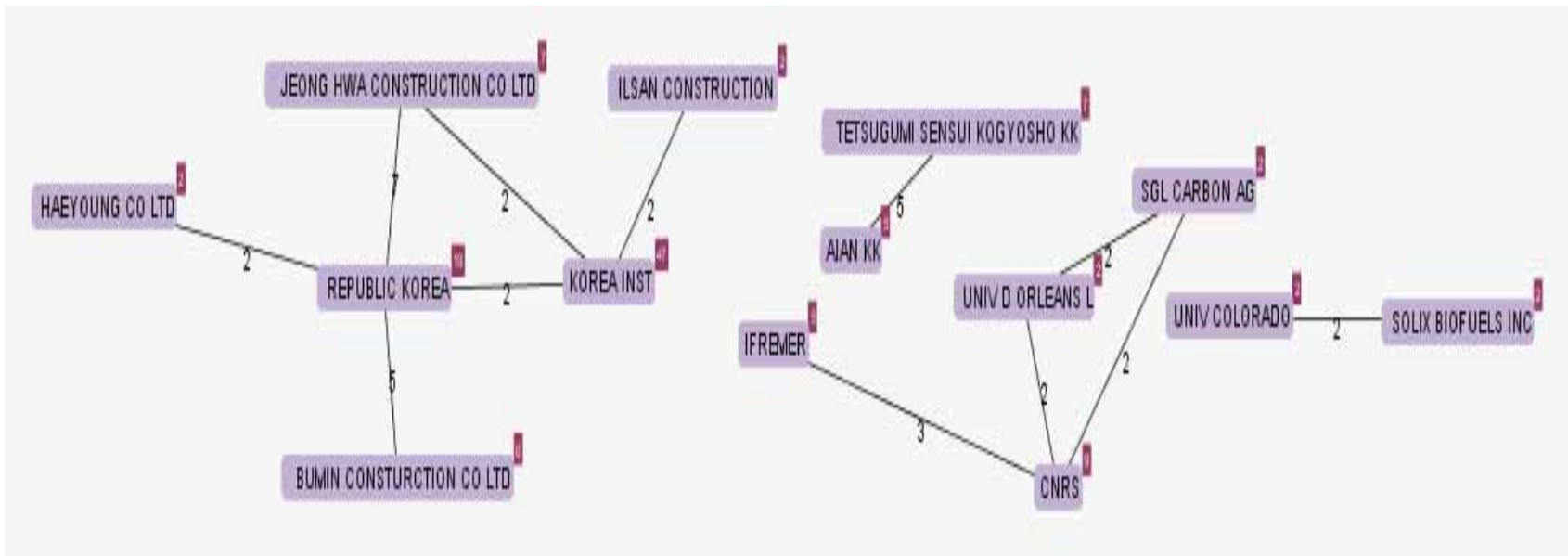
Principaux secteurs d'applications



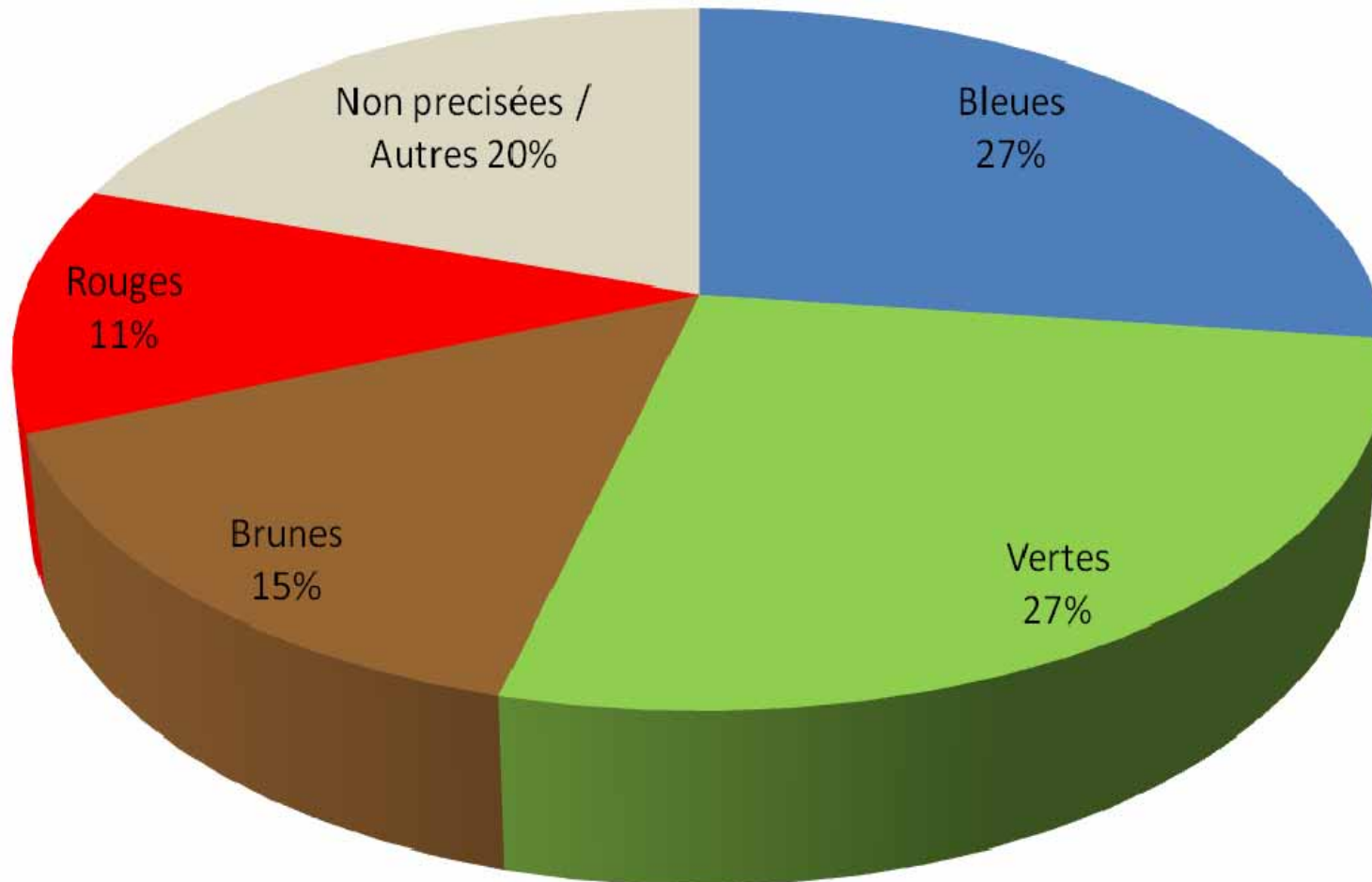
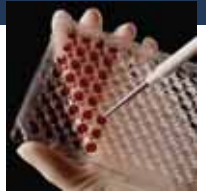
Top 10 déposants



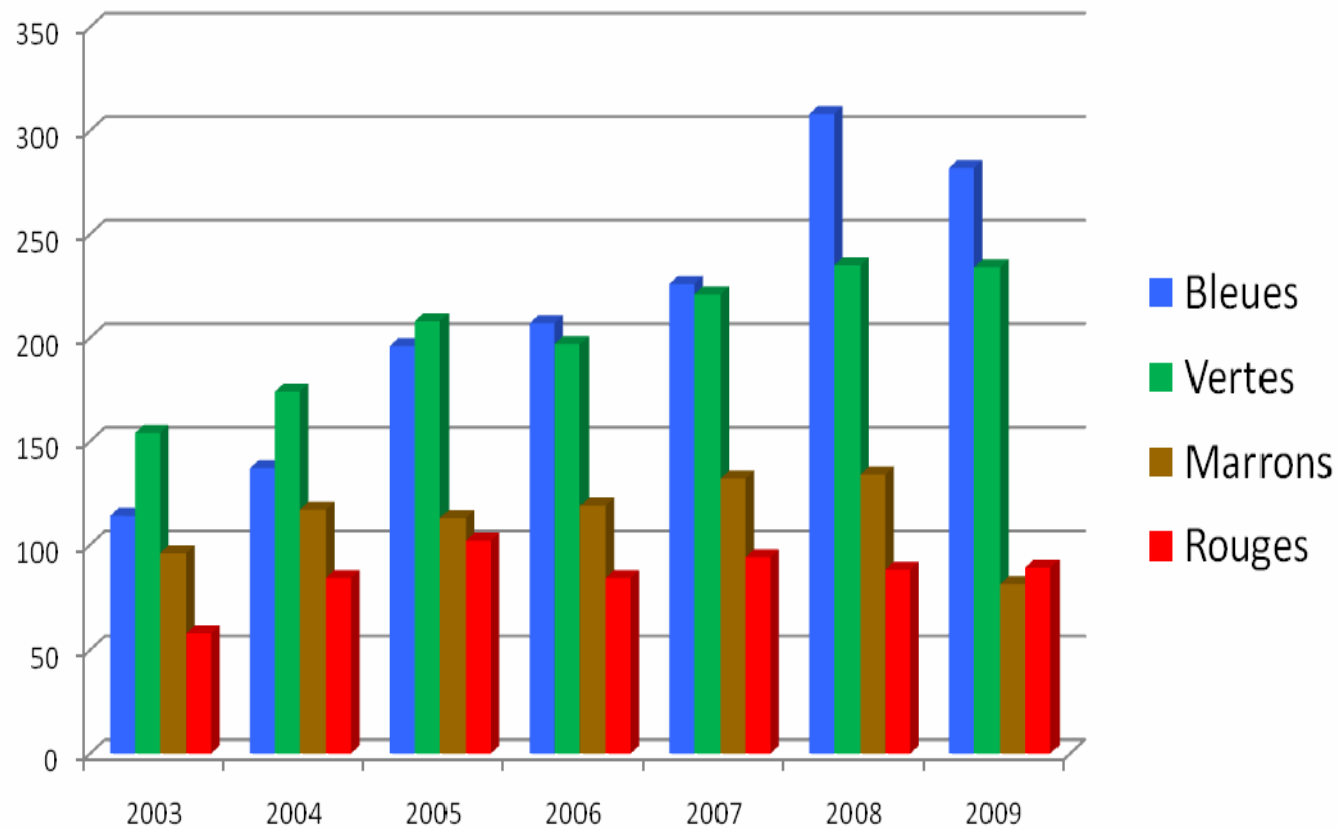
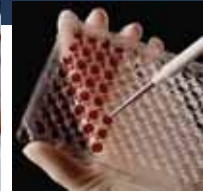
Exemple de collaboration entre déposants



Distribution par couleurs

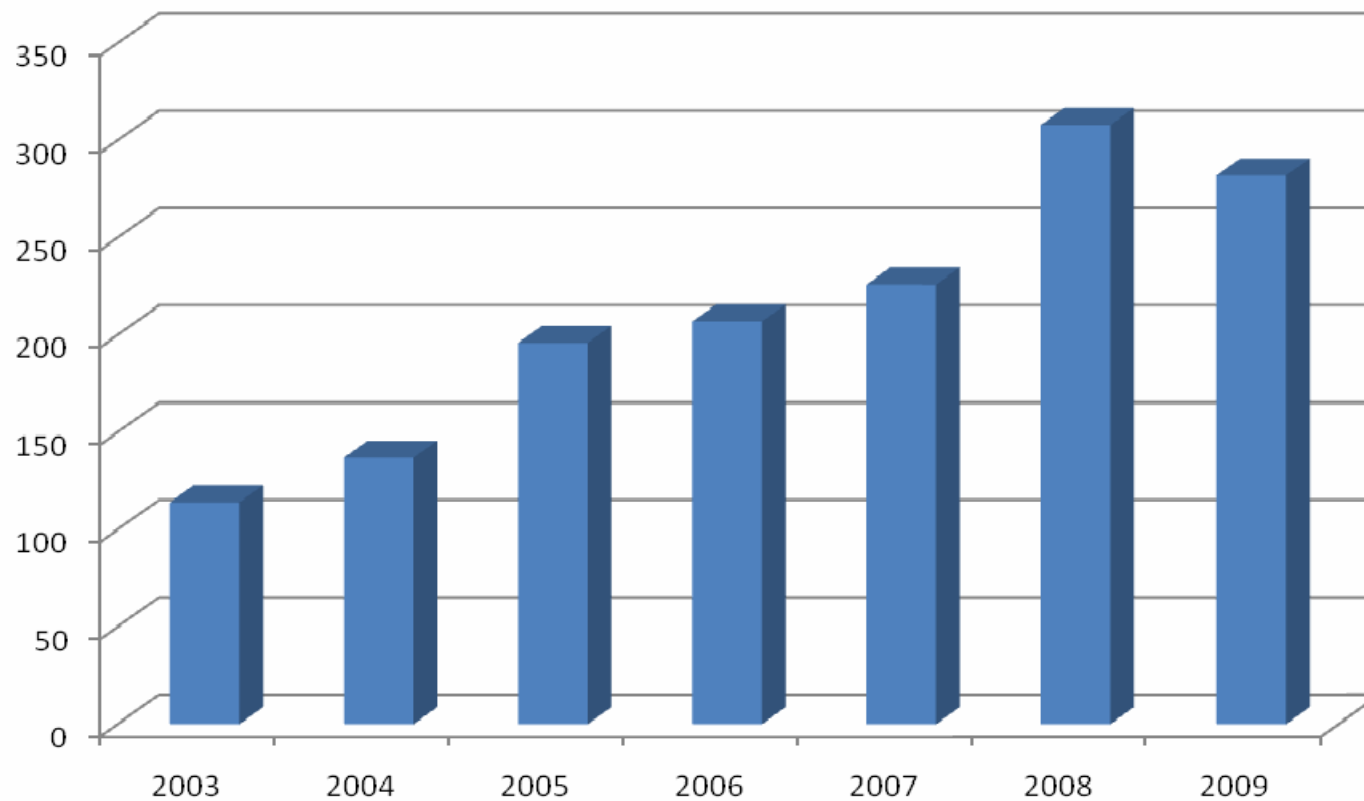
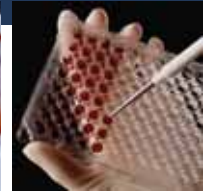


Évolution des couleurs par année



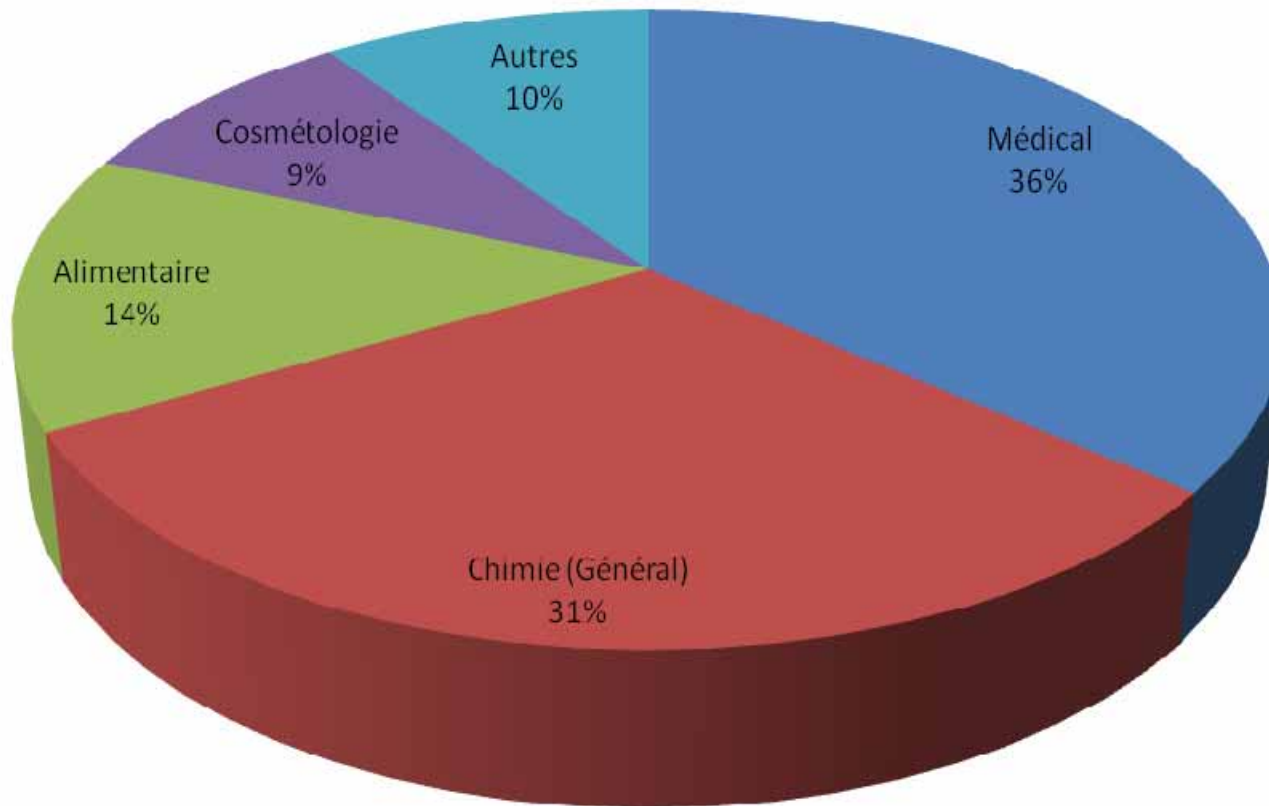
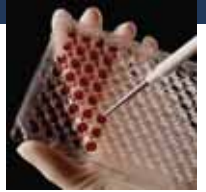
Algues bleues

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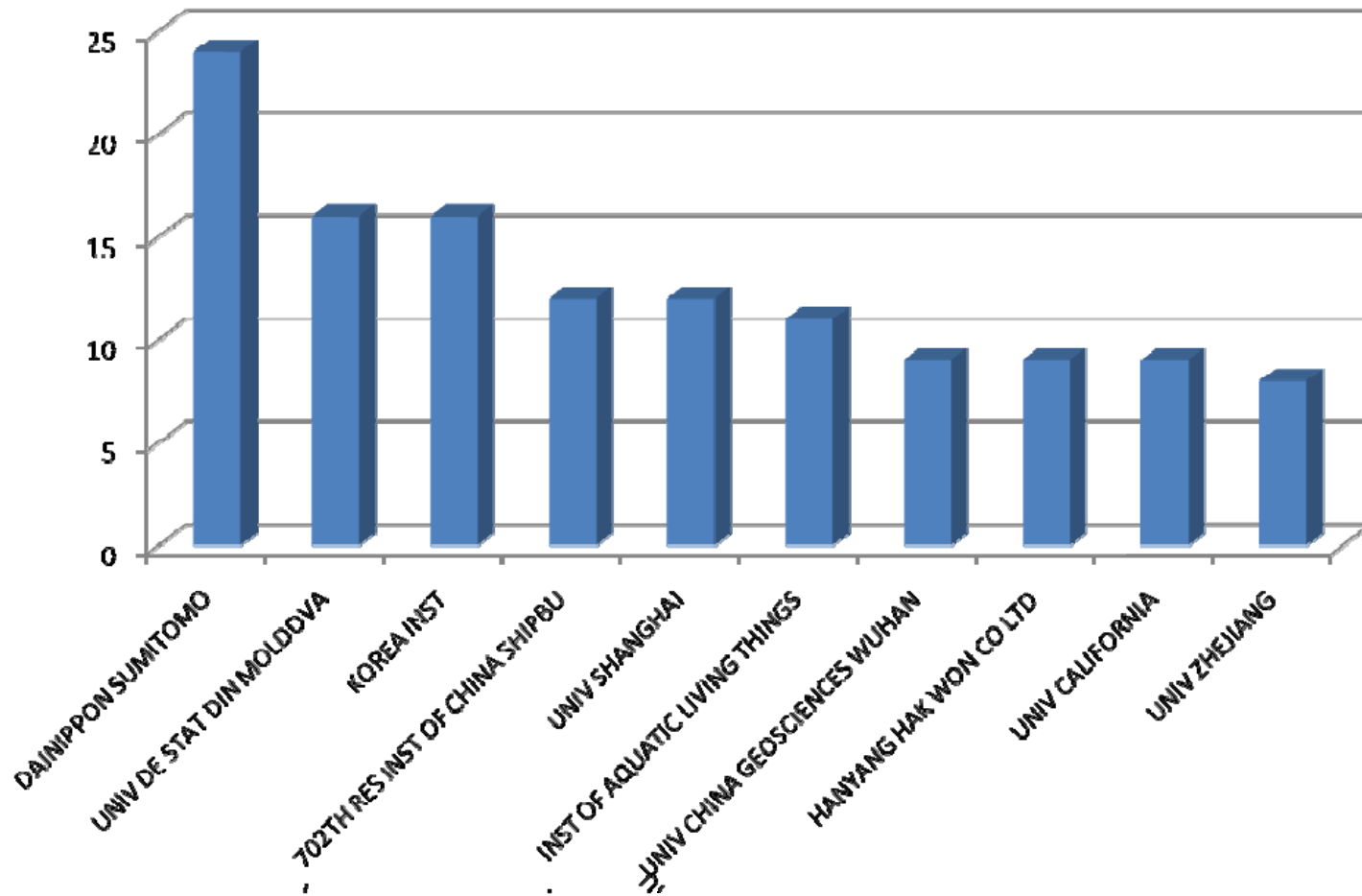
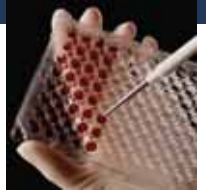
Algues bleues

Principales applications



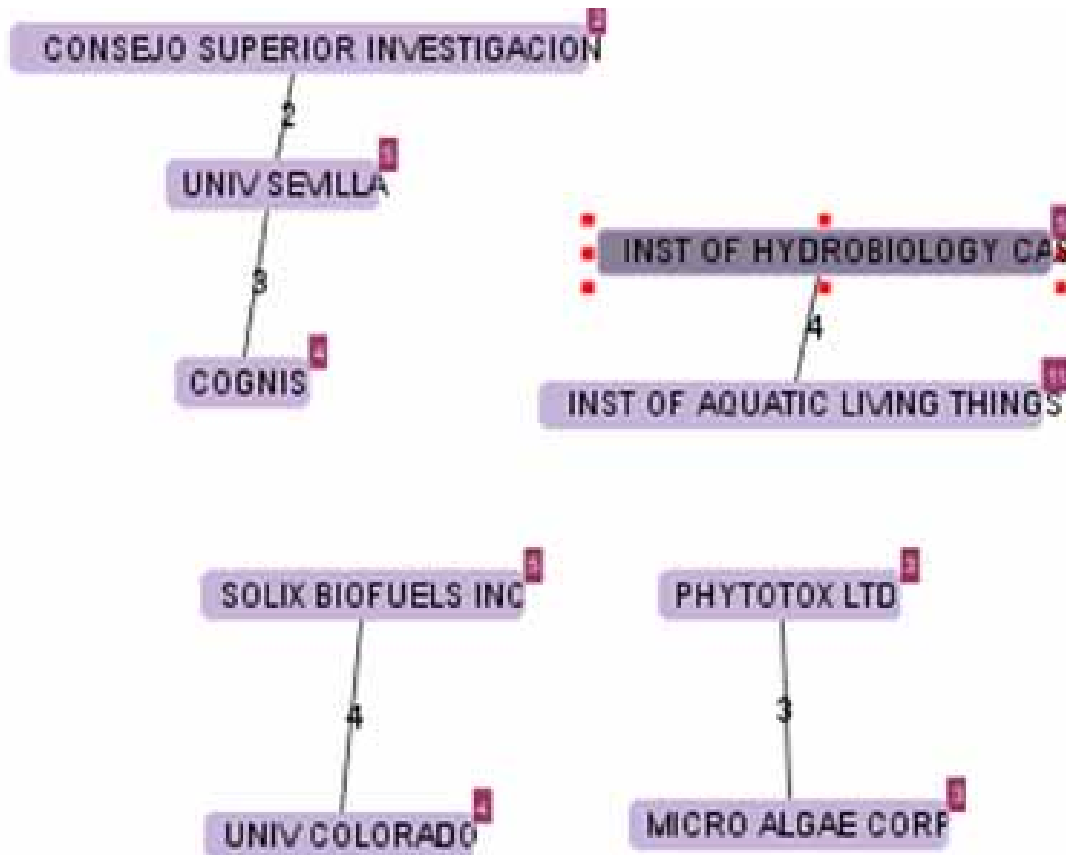
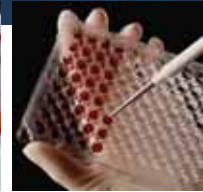
Algues bleues

Top 10 des déposants



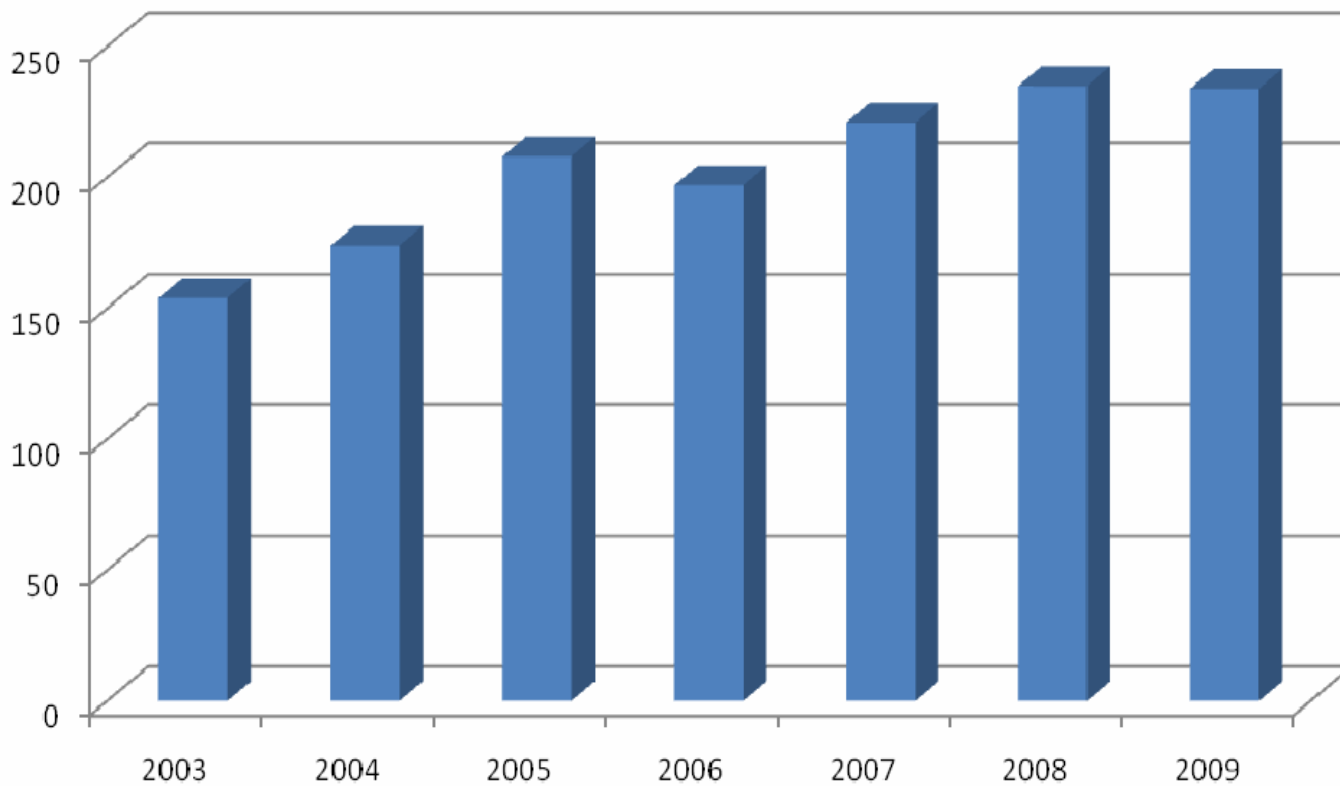
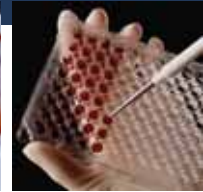
Algues bleues

Exemple de collaboration

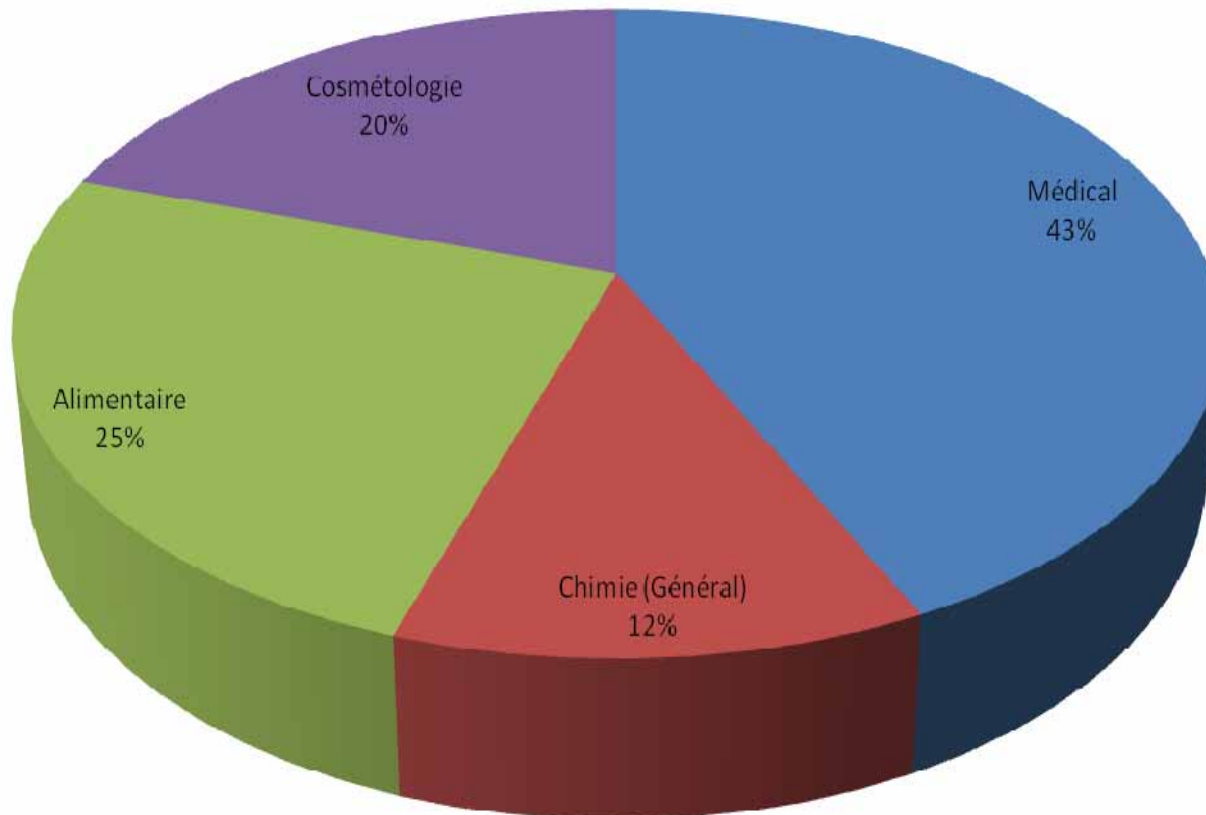
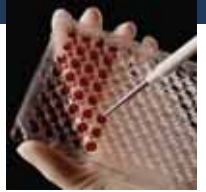


Algues brunes

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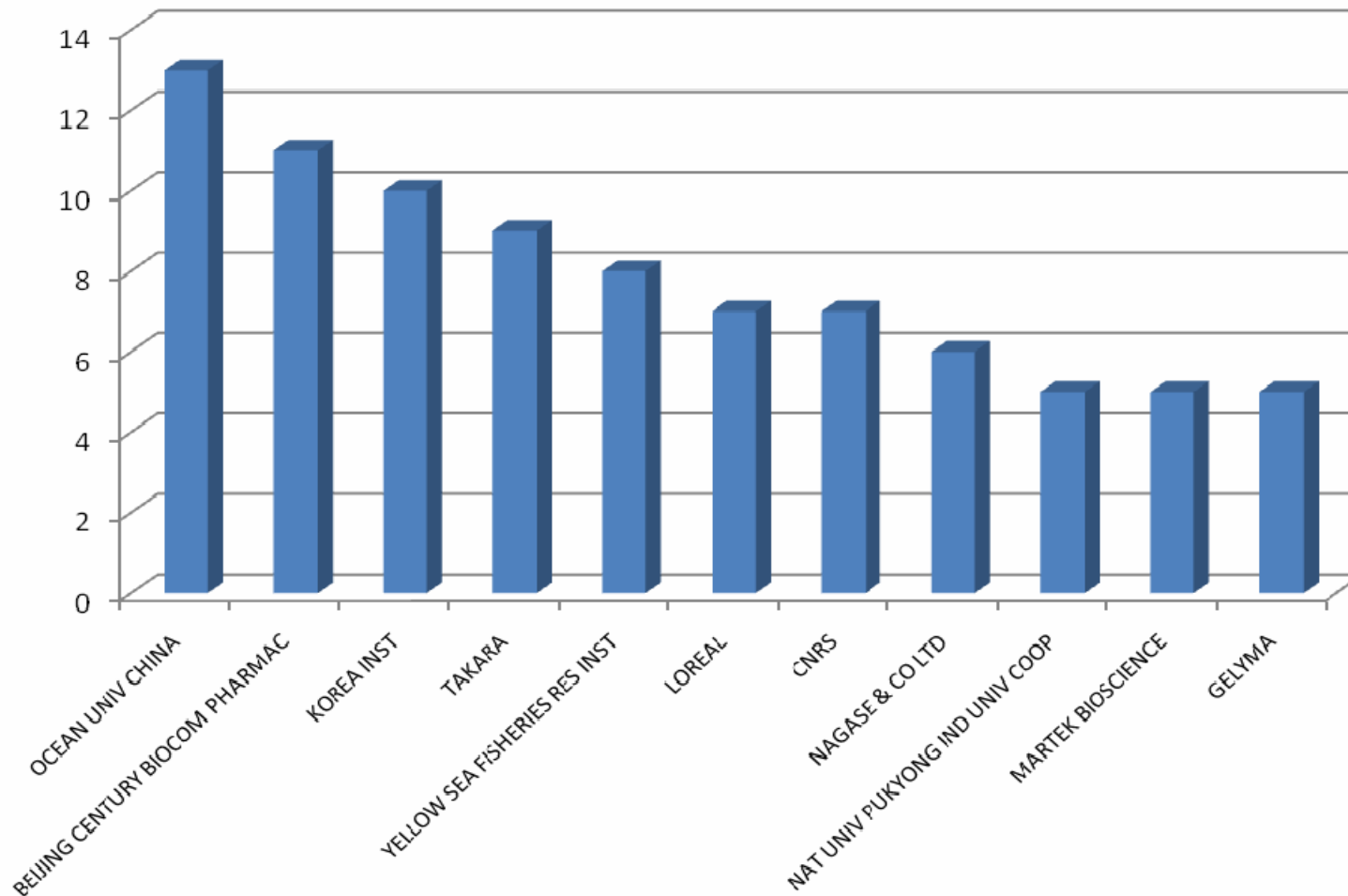
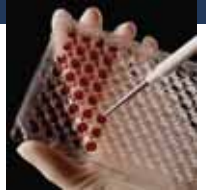


Algues brunes Principales applications



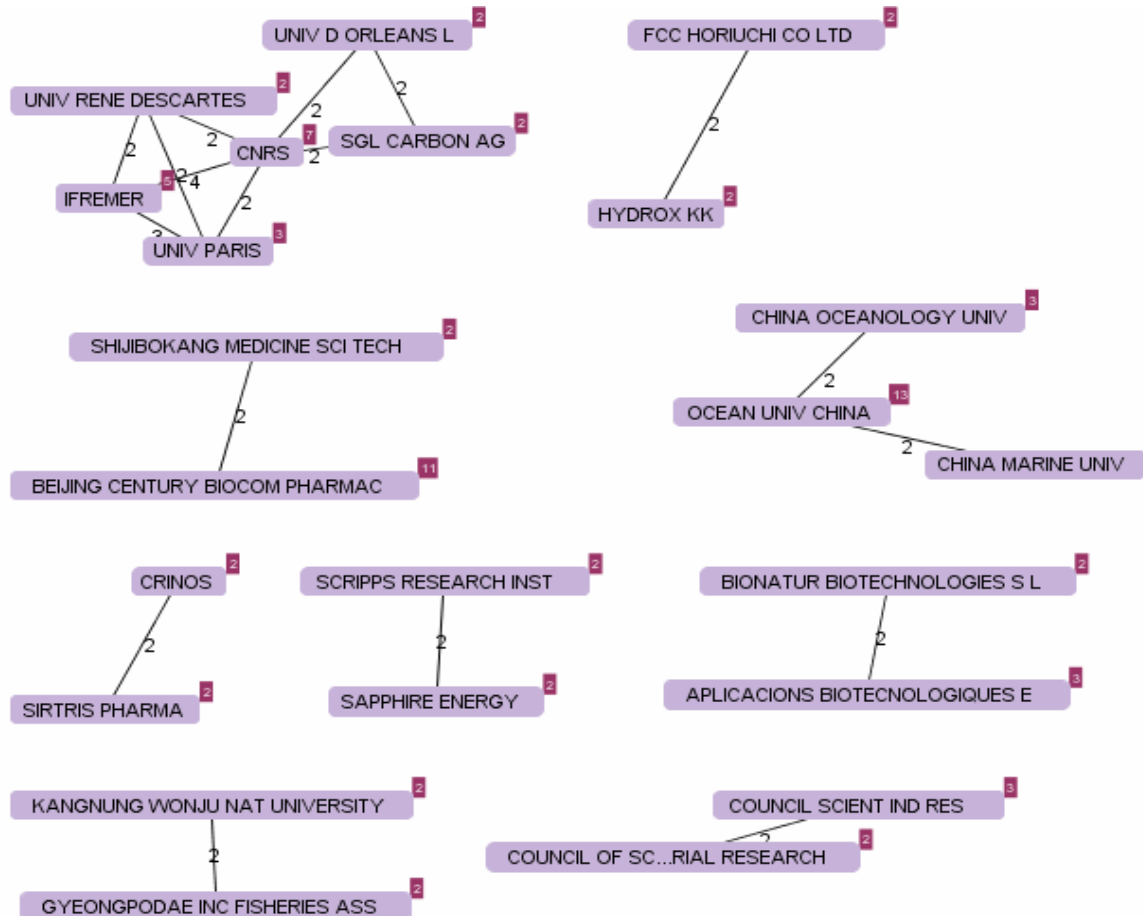
Algues brunes

Top 10 des déposants



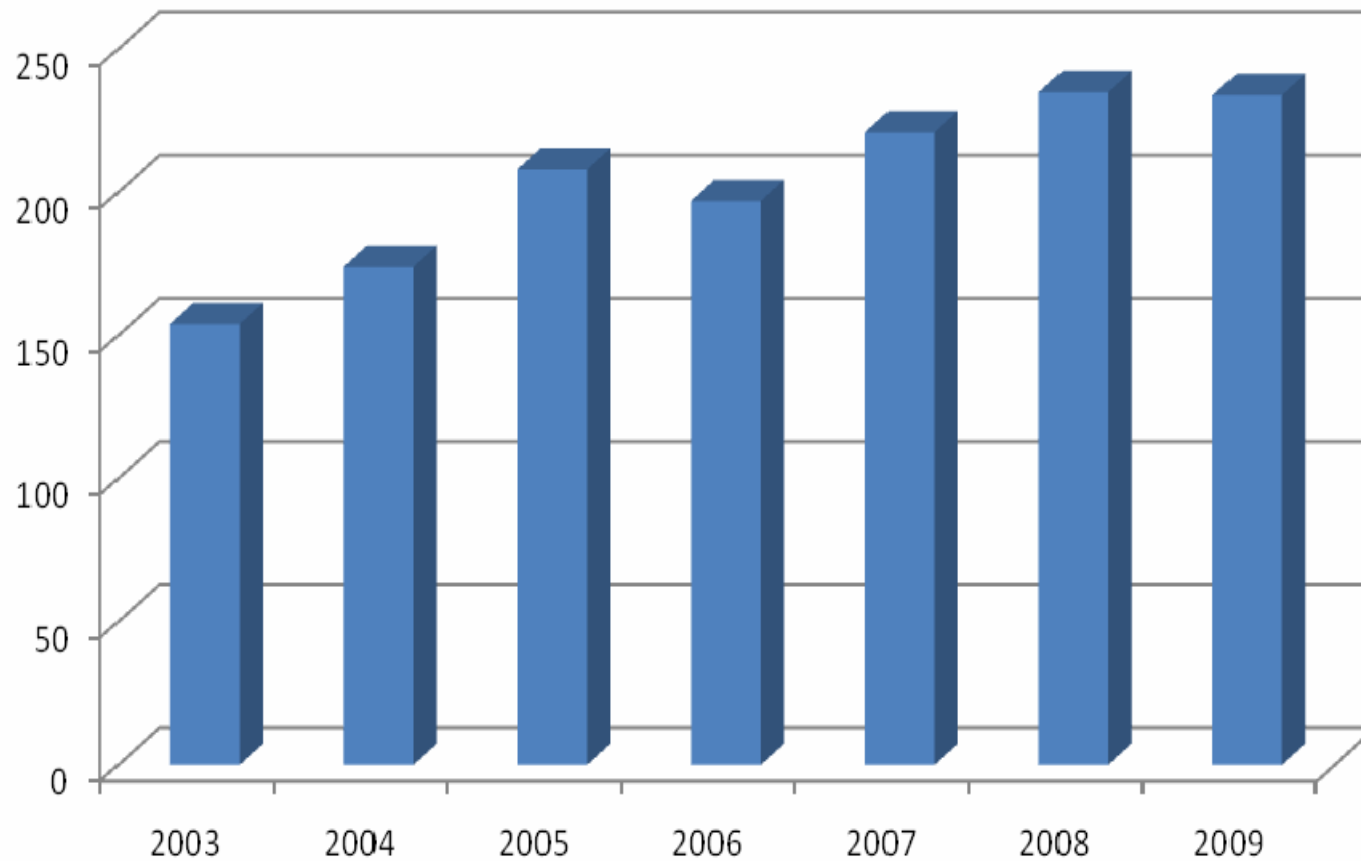
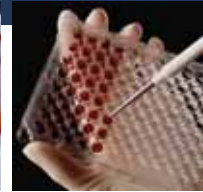
Algues brunes

Exemple de collaboration



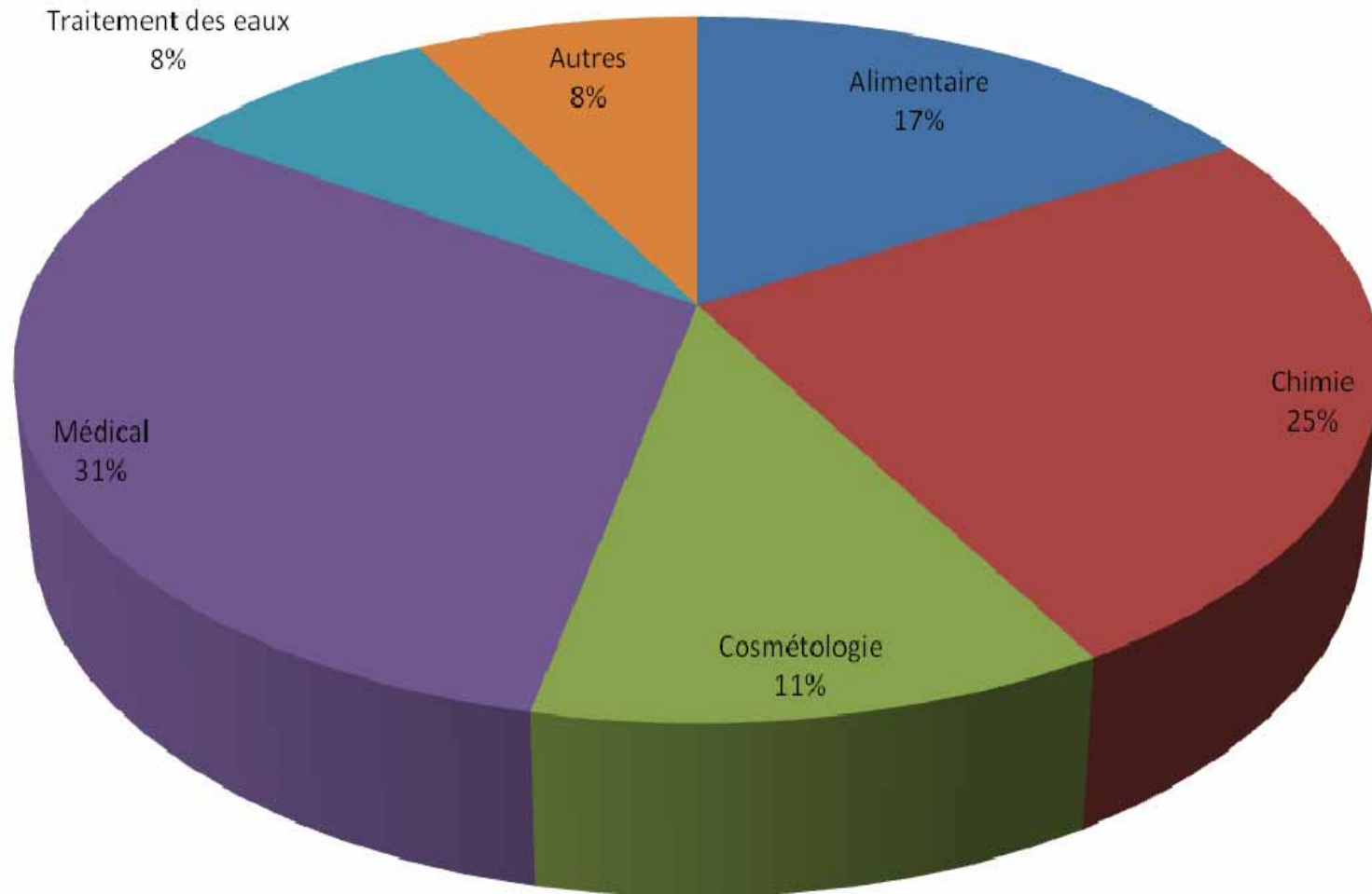
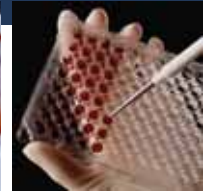
Algues vertes

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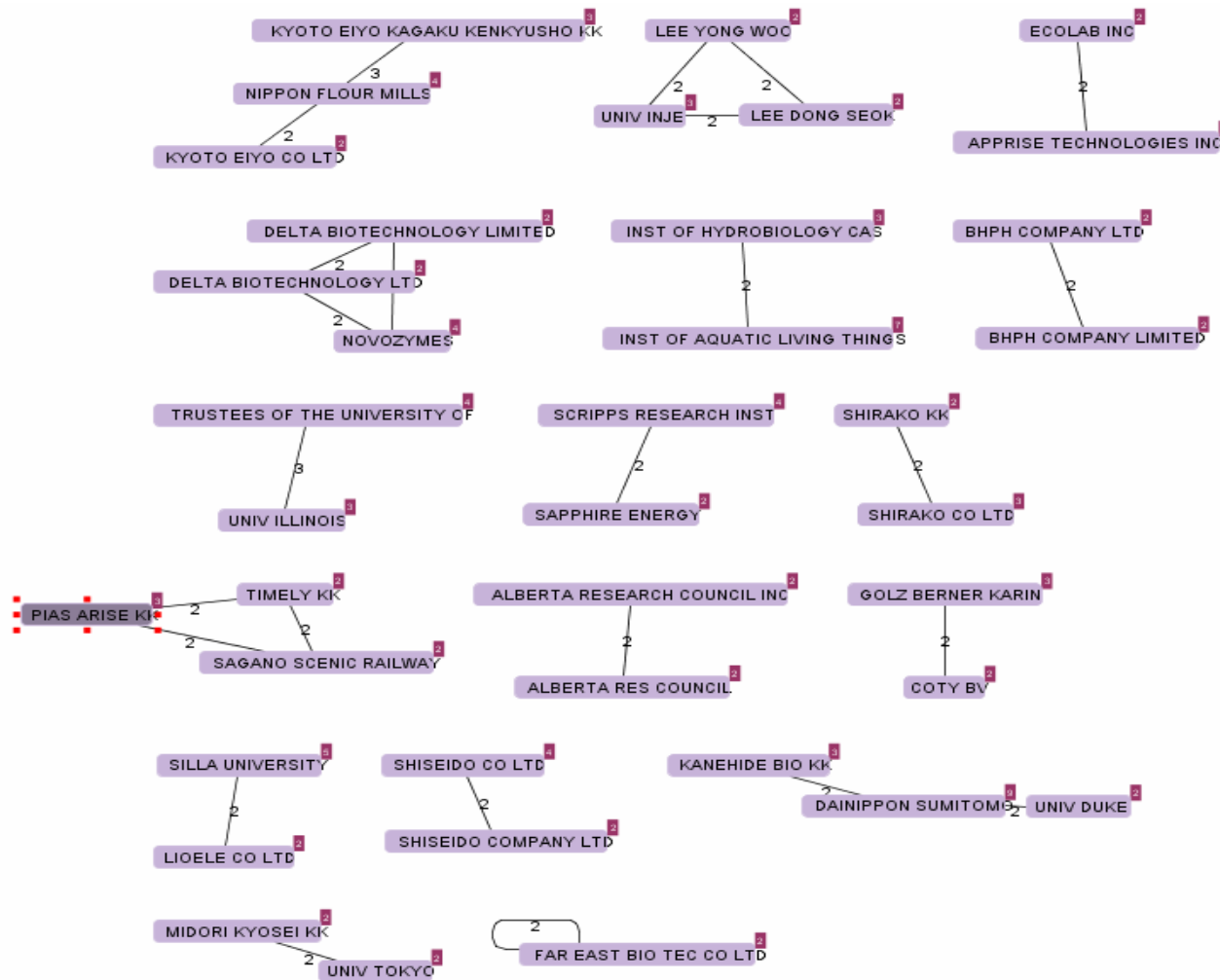
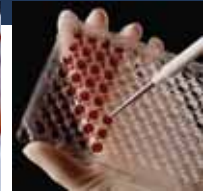
Algues vertes

Principales applications



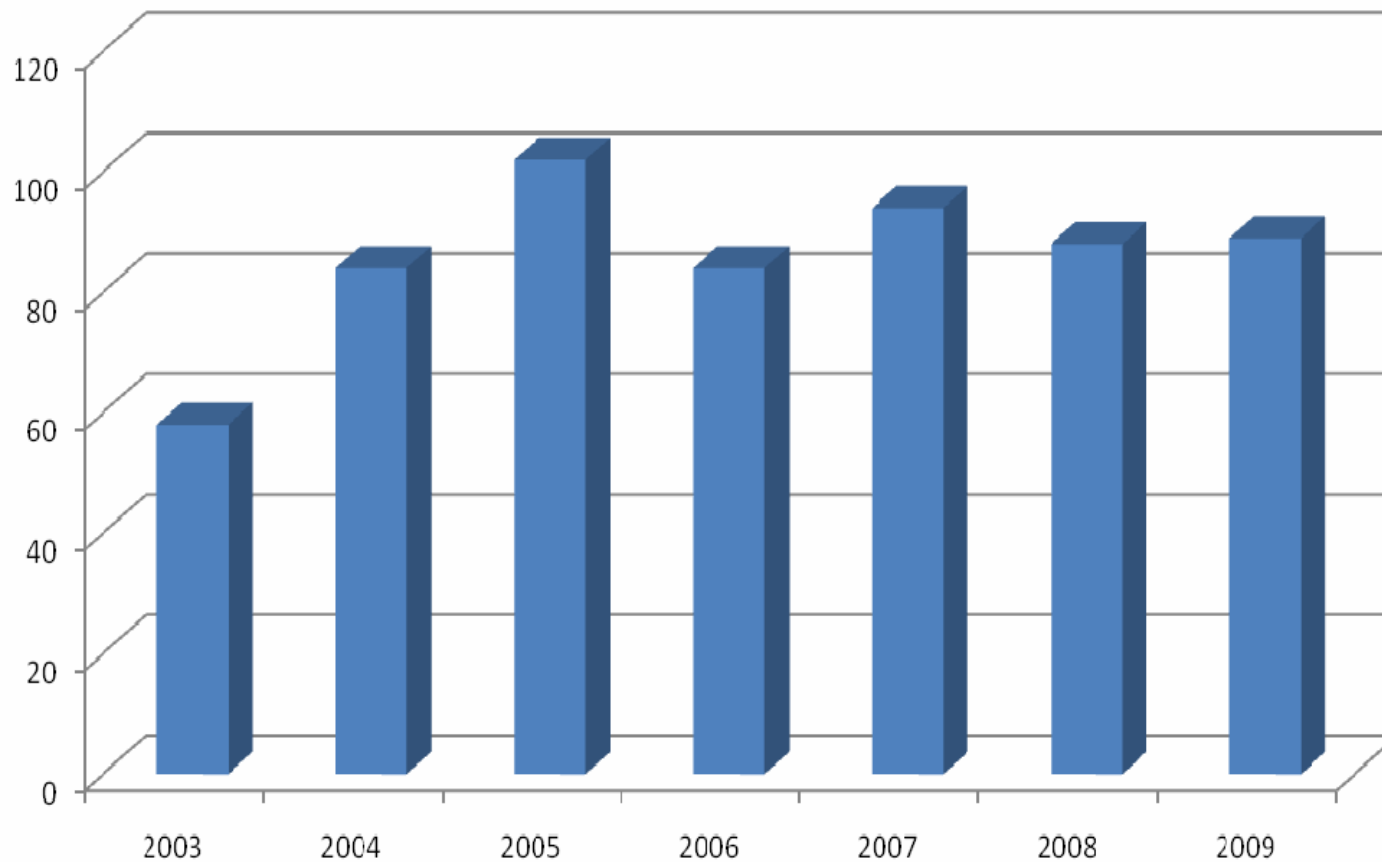
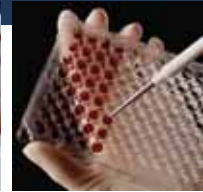
Algues vertes

Exemple de collaboration

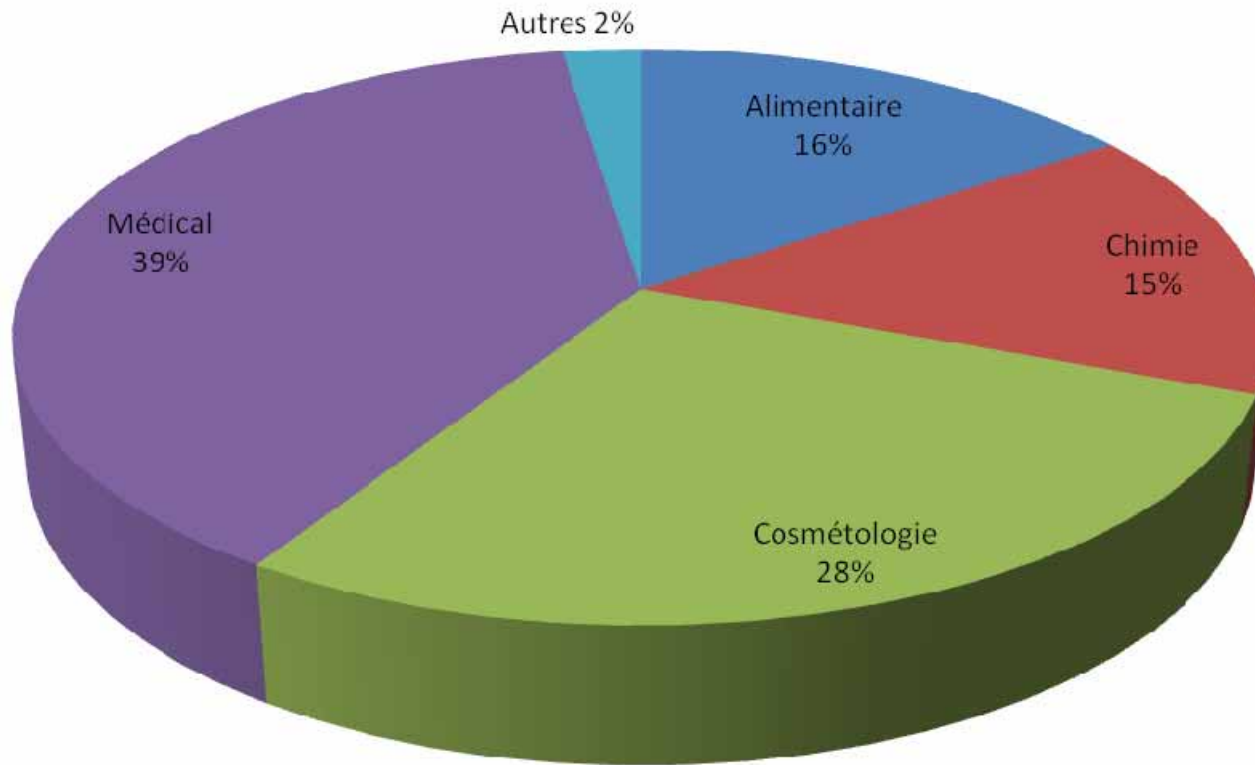
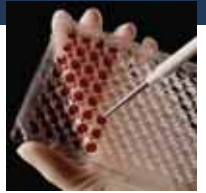


Algues rouges

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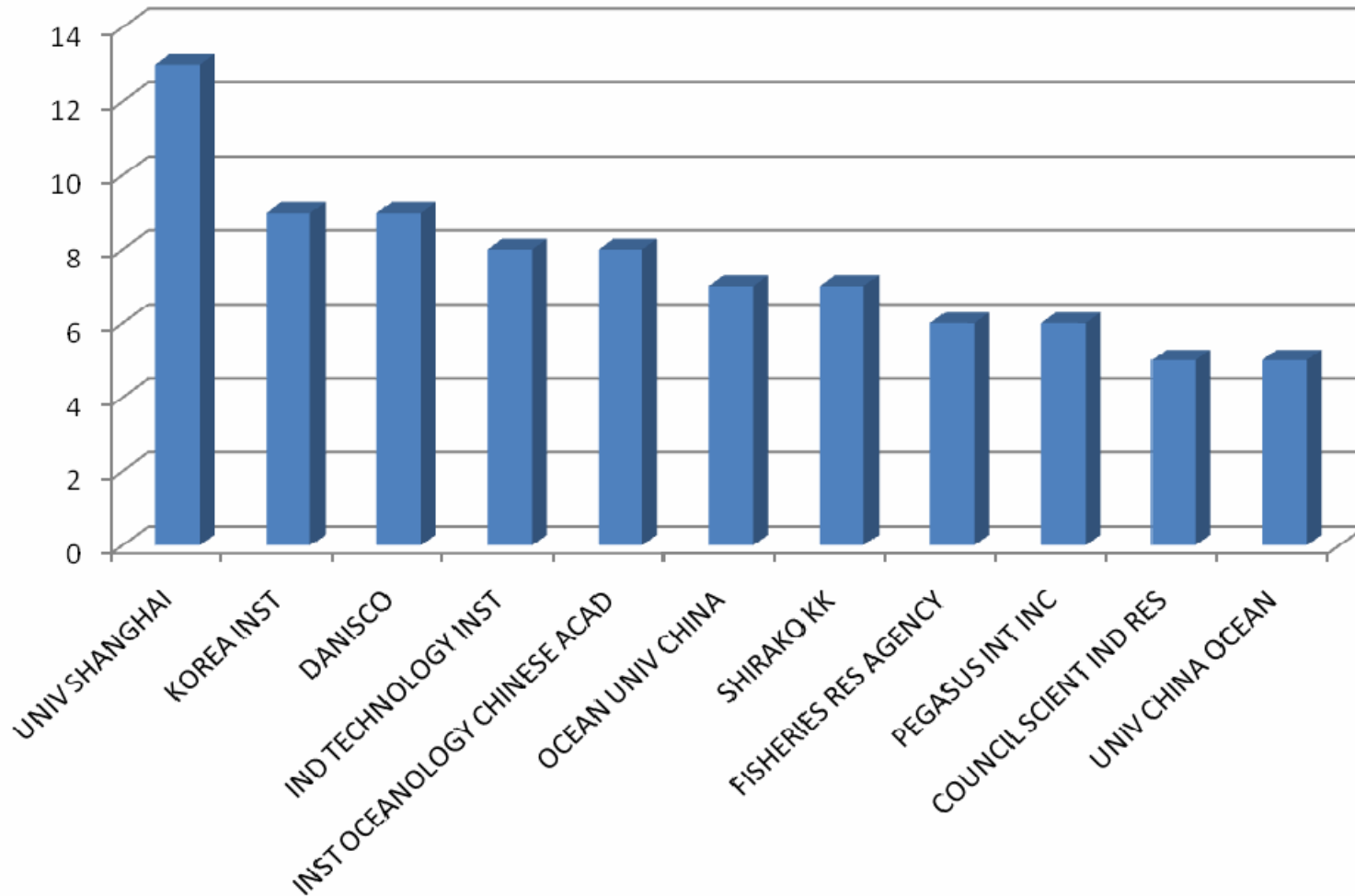
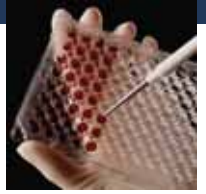


Algues rouges Principales applications



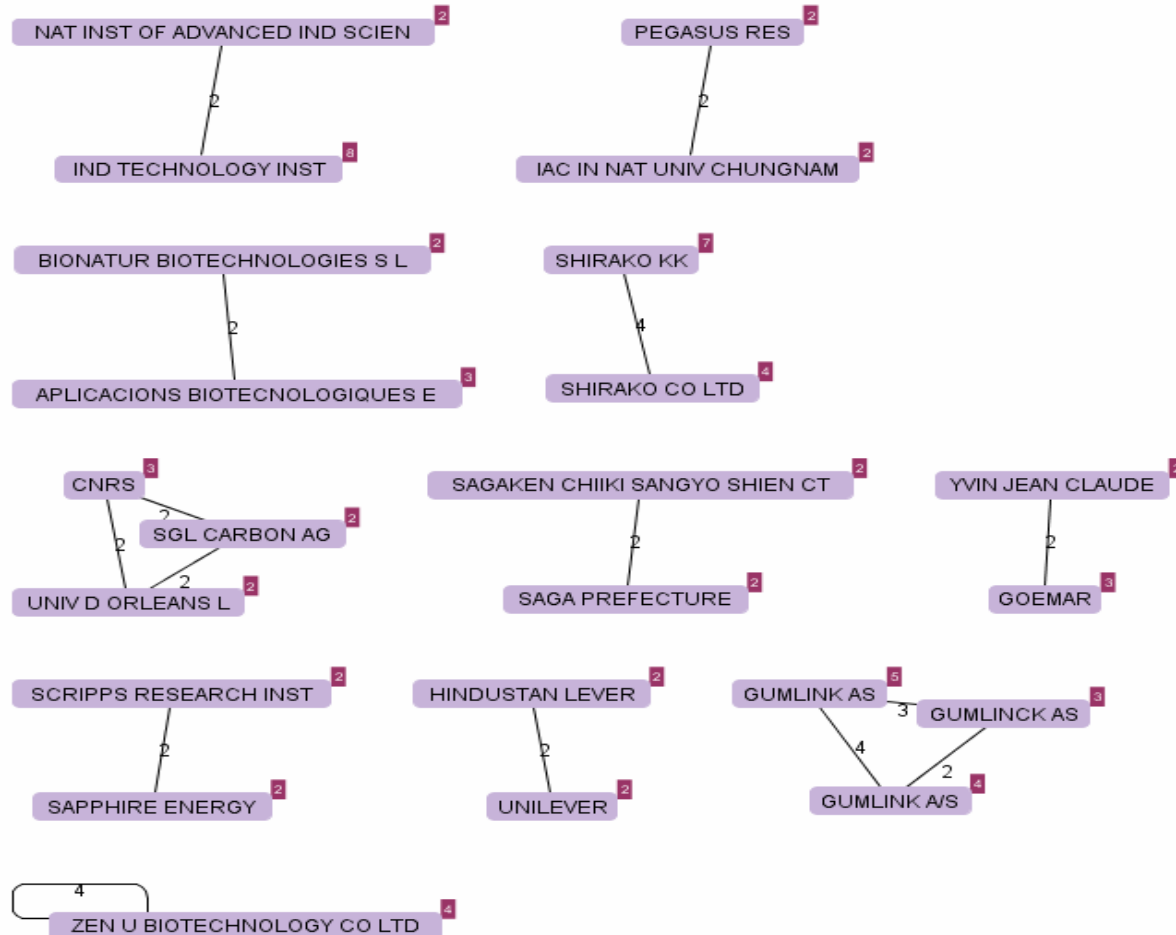
Algues rouges

Top 10 des déposants



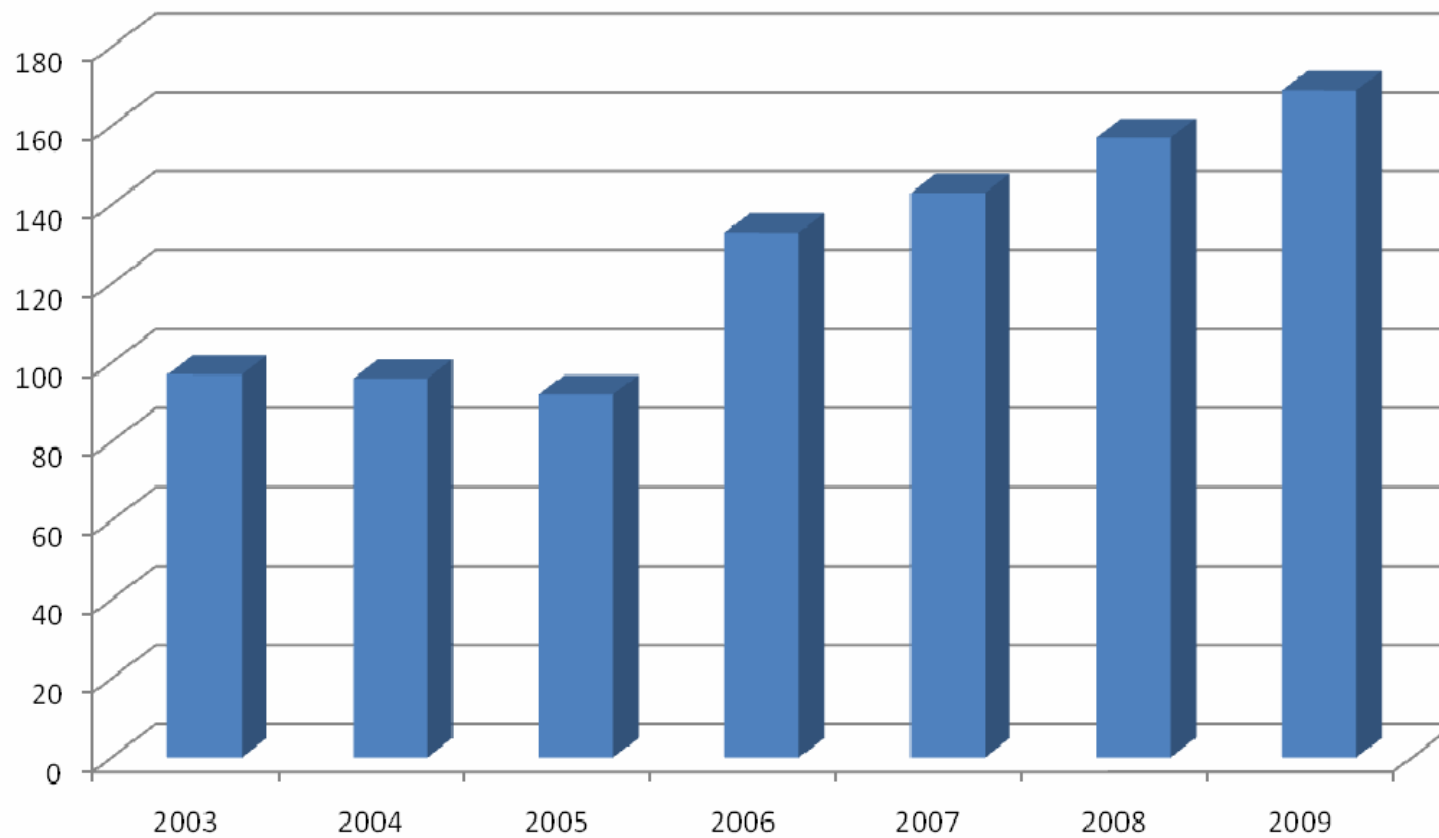
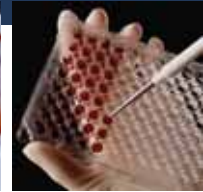
Algues rouges

Exemple de collaboration

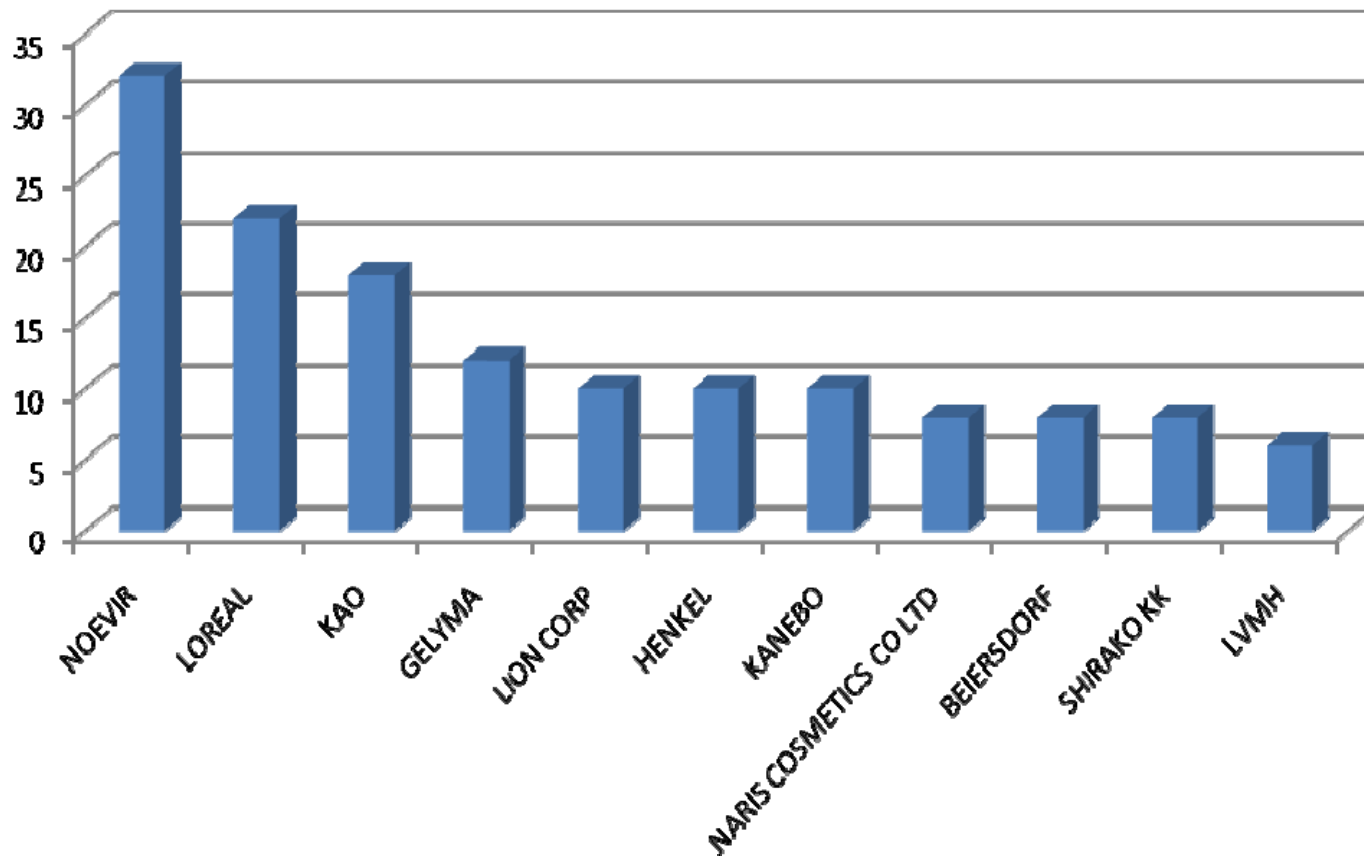
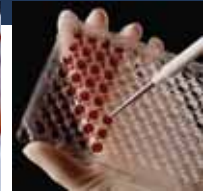


Cosmétologie

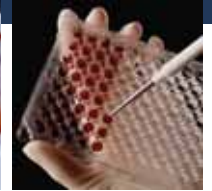
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Cosmétologie Top 10 des déposants



Cosmétologie



- **SLIMMING CREAM BASED ON PLANTS - WO9745100**

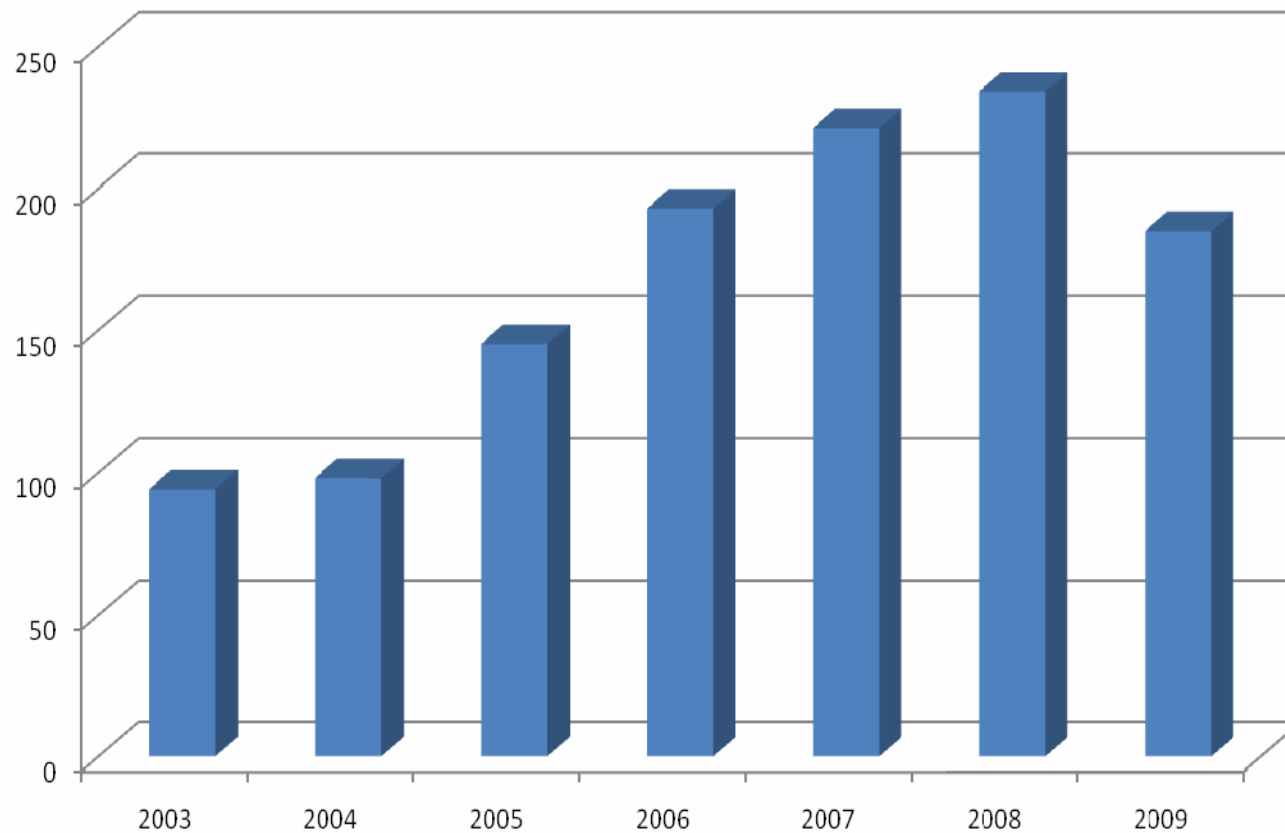
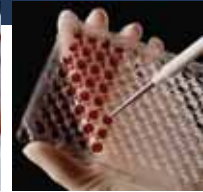
- **Patent Assignee** DOS SANTOS GEORGINADOS SANTOS MOTA JOAO
CARLOSJOAO CARLOS DOS SANTOS MOTAMOTA JOAO CARLOS DOS SANTOS

- **Publication Information** [WO9745100](#) A1 19971204 [WO9745100]

- **Abstract:** (US5972340) PCT No. PCT/PT96/00004 Sec. 371 Date Jul. 10, 1998 Sec. 102(e) Date Jul. 10, 1998 PCT Filed May 31, 1996 PCT Pub. No. WO97/45100 PCT Pub. Date Dec. 4, 1997The present invention refers to a slimming cream based on plants, comprising 0.5 to 5% seaweeds, 0.8 to 8% creeping ivy, 0.3 to 3% horsetail, 0.5 to 5% fenugreek, 0.5 to 5% mallows, 0.3 to 3% witch hazel, 0.4 to 4% wheatgerm oil, 0.2 to 2% camphor, a preservative and an excipient in a sufficient amount to make up a 100%. Another aim of the invention is a process for preparing said cream as well as a method of applying same. The cream according to the present invention is used to promote local slimming and to fight cellulite.

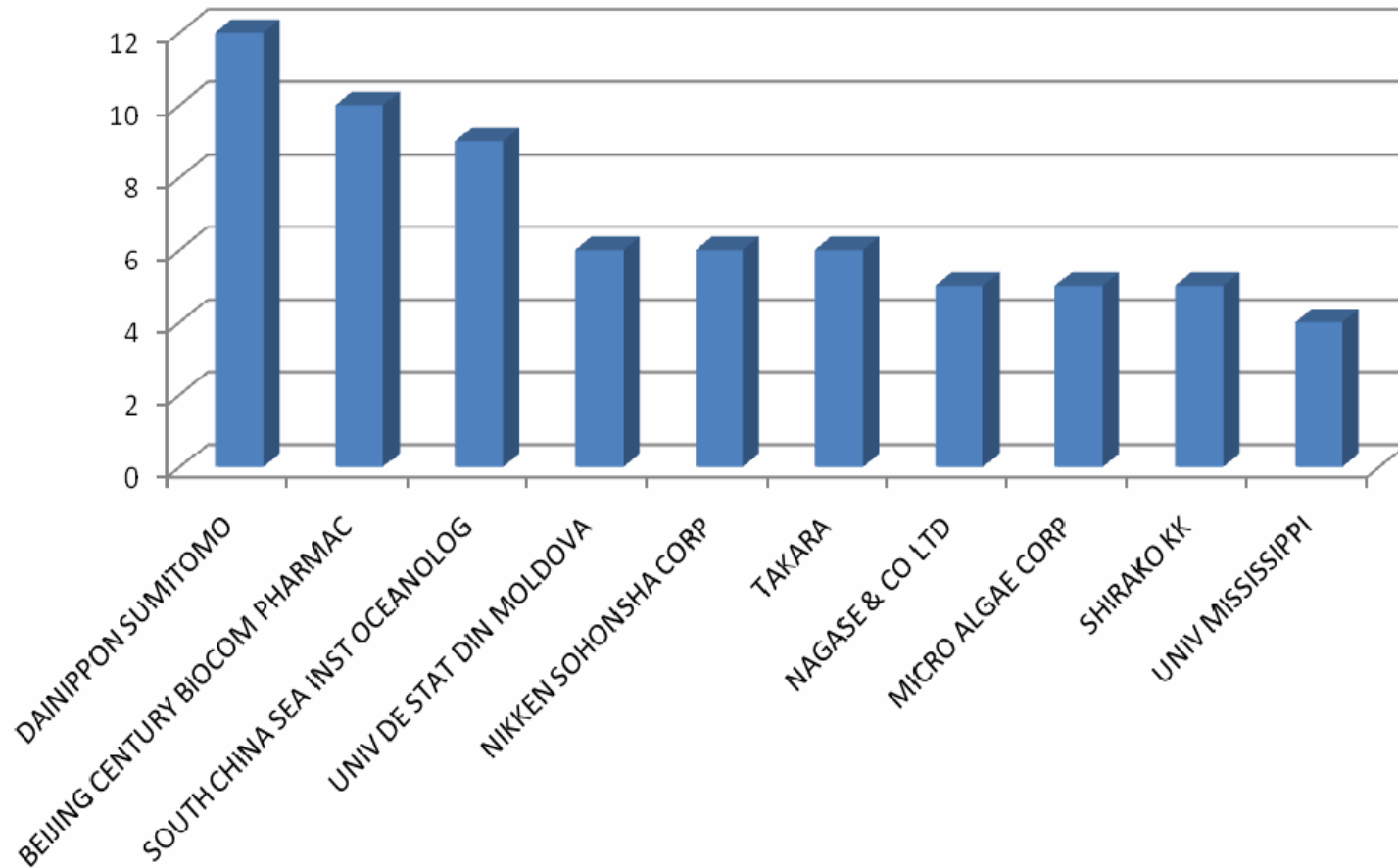
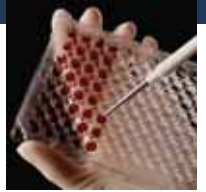
Médical

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Médical

Top 10 des déposants



Médical



▪ **ANTIVIRAL AGENTS - IL114267**

- **Patent Assignee** BEN GURION UNIV OF NEGER RESEAUNIV BEN GURION
- **Priority Details** 1995IL-0114267 199506221996IL-0122150 199606201996WO-IL00019 19960620

CLAIMS:

- 1. An antiviral composition, comprising as an active ingredient an antivirally effective amount of a red microalga polysaccharide, or a mixture of two or more red microalga polysaccharides.
- 2. An antiviral composition according to claim 1, comprising as an active ingredient an effective replication-inhibiting amount of a red microalga polysaccharide. or a mixture of two or more red microalgae polysaccharides.
- 3. An antiviral composition according to claim 1, comprising as an active ingredient a red microalga polysaccharide in an amount effective to protect against viral infection.
- 6. An antiviral composition according to any one of claims 1 to 3, wherein the red microalga polysaccharide is a sulphated polysaccharide.
- 12. A composition according to claim 11, wherein the virus is a Herpes simplex virus.
- 13. A composition according to claims 11 and 12, wherein the conventional antiviral agent is acyclovir.
- 14. A composition according to claim 1, wherein the virus is a Varicella Zoster virus.
- 15. A composition according to claim 1, wherein the red microalgae is selected from among Porphyridium sp., P. aerugineum, and R. reticulata.

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SEARCH

LIFE SCIENCES, INNOVATION, DRUG DEVELOPMENT

Scientists from Sapphire Energy, UCSD, Scripps, and Protelica Show Genetically Modified Algae Can Make Important Drugs

Bruce V. Bigelow 3/8/10

Scientists in San Diego and Hayward, CA, have demonstrated the feasibility of using algae to produce commercial levels of human therapeutic proteins that are currently being used to treat emphysema and other diseases, or are in clinical trials for use to boost the immune system.

"The bottom line from the study is that the algae expression platform is ready for prime time," UC San Diego biologist Stephen Mayfield writes in an e-mail to me over the weekend. "We can express a very high percentage of recombinant genes (at least as good as the best system out there) and they are soluble and bioactive."

Mayfield says the findings substantiate something he told Denise in December—that algae could dramatically cut the costs of making complex proteins, including interferons, antibodies, and growth factors that already are being used to treat cancer and other diseases. Such complex drugs are currently produced from mammalian or bacterial cells. Algae, though, is much less expensive to work with, and algae cells grow much more quickly—doubling in number ever 12 hours.

"Obviously the scalability and cost of algae make the system attractive, but if you can't make a high percentage of proteins then costs don't really matter that much," says Mayfield, who led the study. The research, published online this week in *Plant Biotechnology Journal*, included scientists from The Scripps Research Institute (TSRI), San Diego algae biofuels company Sapphire Energy, and Protelica, (previously known as ProtElix) a Hayward, CA-based startup that specializes in protein engineering. Mayfield joined UCSD in November from TSRI, where he had worked since 1987.

Mayfield said a few months ago that a factory that uses algae to produce biotechnology drugs would be significantly cheaper to build than a traditional facility, and drug production costs would be about 75 percent lower. He contends that pharmaceutical companies could use such savings to dramatically cut the costs of some drugs that now cost consumers tens of thousands of dollars a year.



- National
- Life Sciences
- Startups

UNDERWRITERS AND PARTNERS



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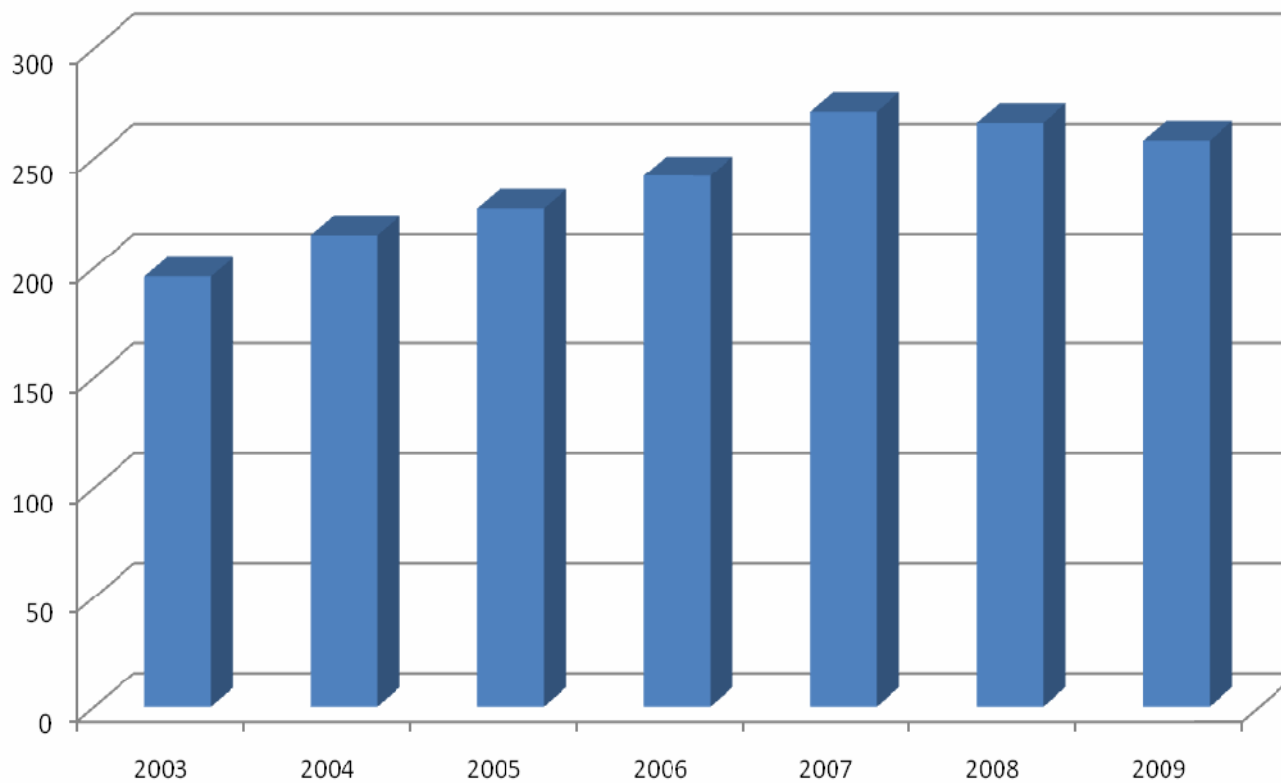
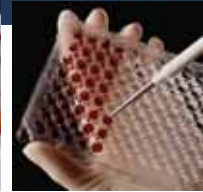
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- Great (Algae) Expectations, and San Diego's Plans for Creating a Big Green Cluster
- Bill Gates, Arch Venture Back Biofuel Maker Sapphire Energy

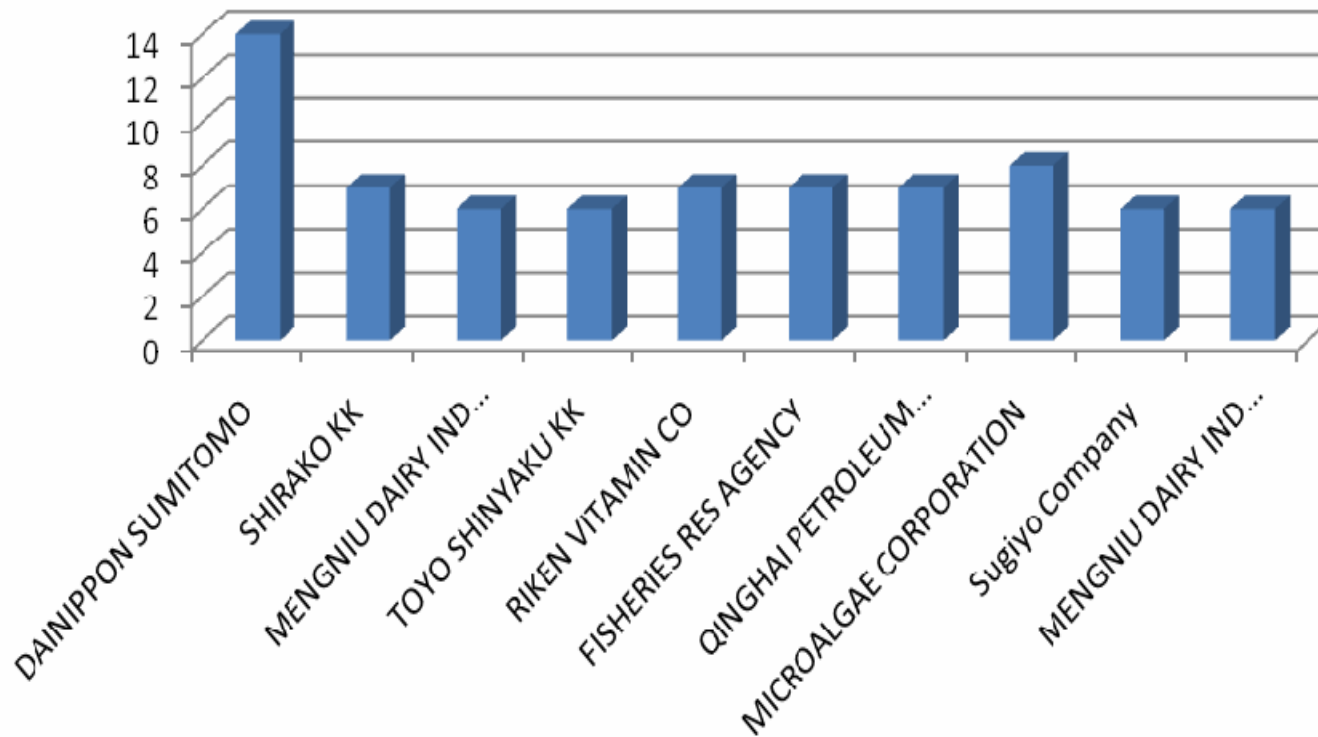
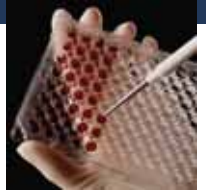


Agro-alimentaire

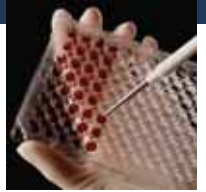
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Agro-alimentaire Top 10 des déposants



Agro-alimentaire



▪ FEED SUPPLEMENT AND METHOD OF ITS PRODUCTION

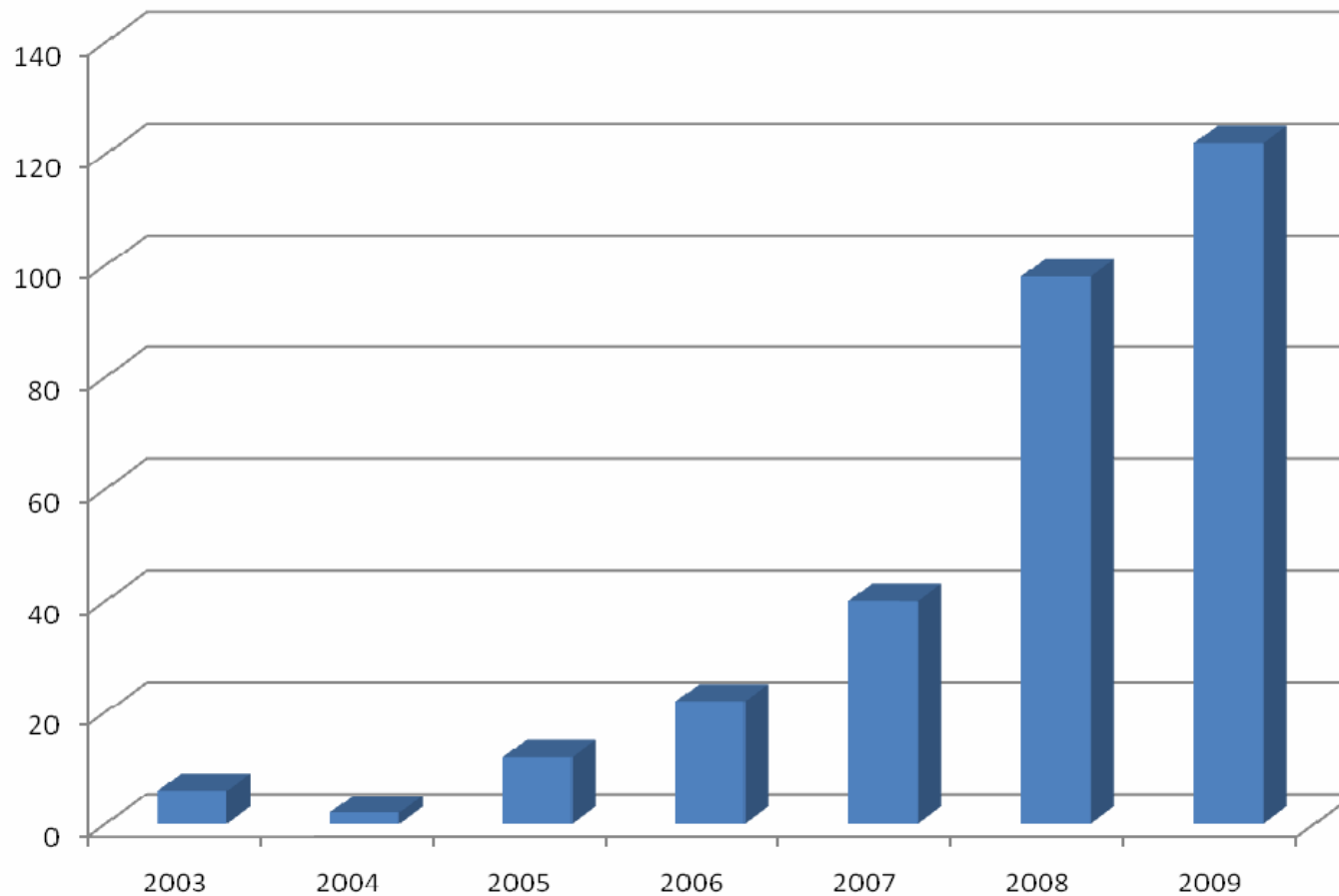
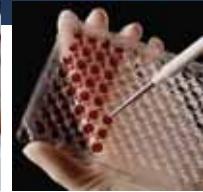
▪ WO2010008259

- Patent Assignee LUKSE RIMANTASLUKSE TOMASSIMKUS ALMANTAS
- Publication Information [WO2010008259](#) A1 20100121 [WO201008259]
- Priority Details 2008LT-0000053 2008071

- **Abstract:** (WO201008259) Animal feed supplement and method of its production. This animal feed supplement contains microalgae Spirulina, it is in the form of fresh Spirulina biomass, and it also contains molasses. The ratio of the components is as follows: 6-33% of Spirulina biomass, the remaining part - molasses. Also, it may contain fructose: 6-67% of mass. Animal feed supplement production method is distinguished for the fact that the biomass of microalgae Spirulina is rinsed with water having pH=5.2 to 5.5, vacuumed to 65-70% humidity, and preserved by having mixed it with molasses preheated to 47-67°C. The biomass of microalgae Spirulina preserved in molasses is sprayed in the grain cultures at the following ratio of the components: biomass of Spirulina in molasses - up to 6% of mass, whereas grain cultures - from 3% to 97% of mass.

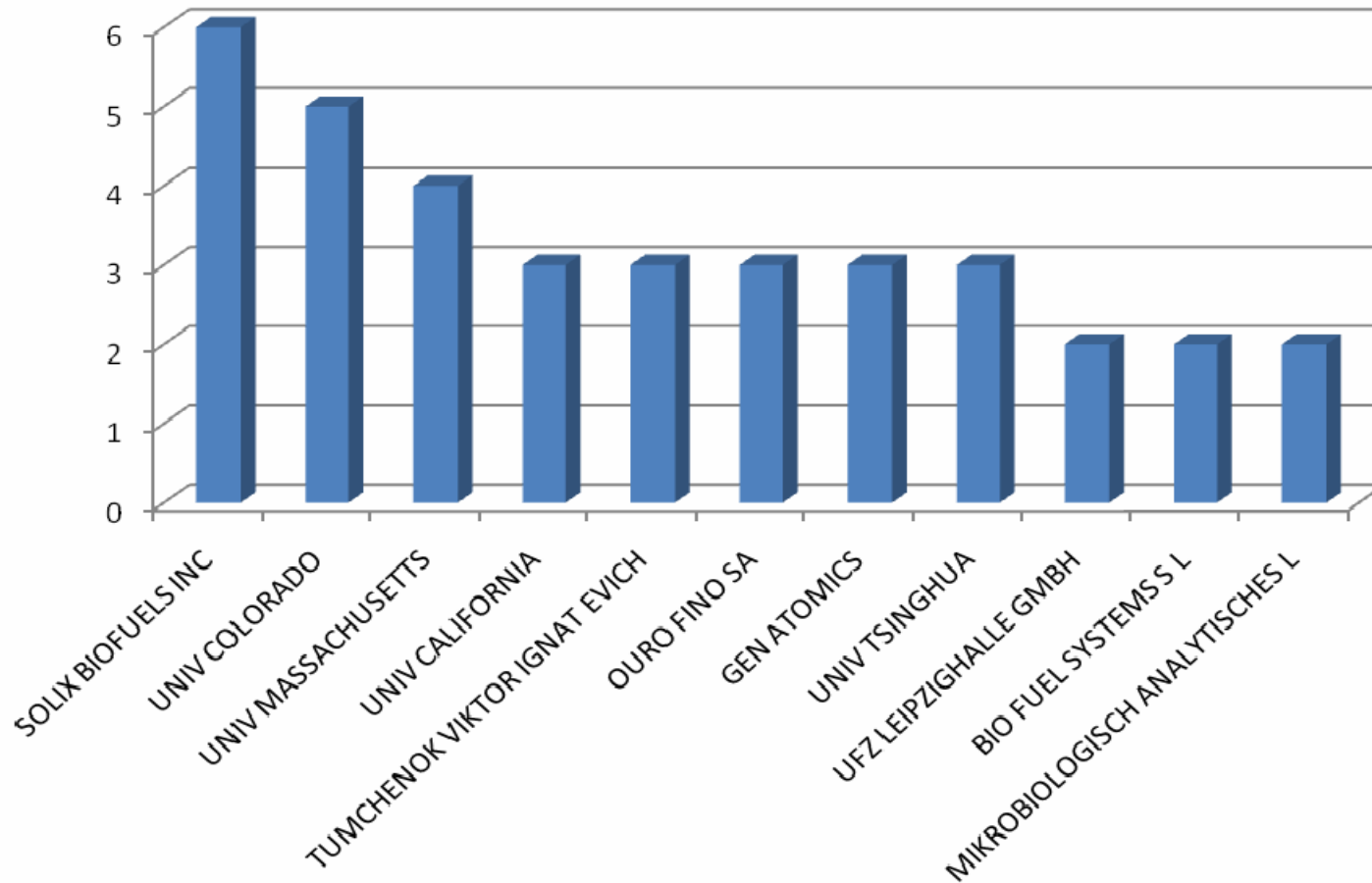
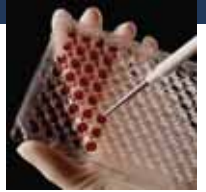
Bioénergies

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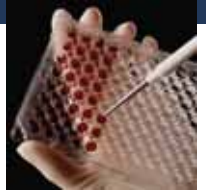


Bioénergies

Top 10 déposants



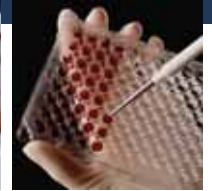
Bioénergies



- **PROCESS AND APPARATUS FOR EXTRACTING BIODIESEL FROM ALGAE**
- **WO2009154437**
- **Patent Assignee** ECHEVARRIA PARRES ANTONIO JOSE
- **Publication Information** [WO2009154437](#) A1 20091223 [WO2009154437]

- **Abstract:** (WO2009154437) The present invention relates to a system for cultivation of algae, extraction of lipids and **transesterification** of the lipids to obtain **biodiesel**. The system comprises three sections, that is to say cultivation, extraction and storage and reaction. In the lipid extraction area there is an ultrasonic reactor wherein the external walls of the alga are ruptured together with those of the oil sac to permit the extraction of lipids, in the transesterification area there is also an ultrasonic reactor which ruptures the molecules of the fluid which passes therethrough to accelerate the reaction and render it almost immediate.

Bioénergies



- LIQUEFIED EXTRACT OF MARINE ALGAE FOR PRODUCING BIO-ETHANOL UNDER HIGH PRESSURE AND METHOD FOR PRODUCING THE SAME
- US2010041926
- Patent Assignee KOREA OCEAN RES DEV INST
- **Abstract:** (US20100041926) A high-pressure liquefied extract of marine algae for **producing bioethanol** and a method of producing the liquid extract from **marine algae** under high pressure, and a method of producing the bioethanol from the high-pressure liquid extract byfermentation with yeast are disclosed. According to the production method of bioethanol using marine algae, the high-pressure liquefied extract can be obtained in high yield and fermentation time can be also reduced. Consequently, the yield of bioethanol is increased. Furthermore, the method gives economical and environmentally friendly values from natural marine algae.

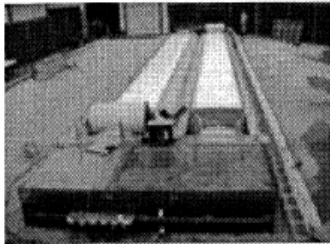
Bioénergies Solix Biofuels

The Energy Blog

The Energy Revolution has begun and will change your lifestyle

December 28, 2006

Solix Biofuels/Colorado State Deleloping Novel Algae Production System



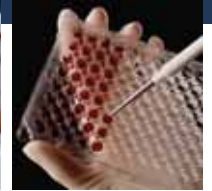
Colorado State University and Solix Biofuels, Inc., a Boulder-based start-up company, are working in partnership to develop technology to mass-produce algae that create oil that can be converted into biodiesel fuel.

The Solix photo-bioreactor system, beta model shown here, which grows algae in temperature controlled closed plastic bags is the novel part of their process and the focus of development at Colorado State University.

Solix plans to commercialize the technology over the course of the next two years and expects to be able to compete commercially with the wholesale price of crude petroleum.

"Algae are the fastest growing organisms on the planet, and can produce 100 times more oil per acre than conventional soil-tilled crops that are now being grown for biofuel use," said Solix founder Jim Sears.

Solix technology captures the sun's energy through photosynthesis to grow algae, capture CO₂ and produce valuable, energy dense "bio-crude". This patent-pending production system offers a scalable system that cheaply and effectively grows algae and optimizes oil production. By reducing the costs of energy input and initial capital outlay, the promise of algae based biofuels that are price-competitive with petroleum fuels is, for the first time, reachable.



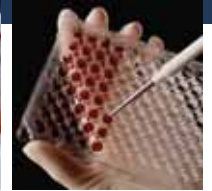
Solix Biofuels Signs Agreement with Los Alamos National Laboratory to Develop Algal Oil Extraction Process

FORT COLLINS, CO—September 9, 2009

Solix Biofuels, Inc. (“Solix”), an alternative energy technology company for the large-scale commercialization of microalgae-based fuels and co-products, has signed a Cooperative Research and Development Agreement (CRADA) with the Los Alamos National Laboratory (“LANL”) which grants Solix access to use and expand upon LANL’s technology; specifically its patented acoustic technology that is beneficial to Solix’s algal oil extraction process.

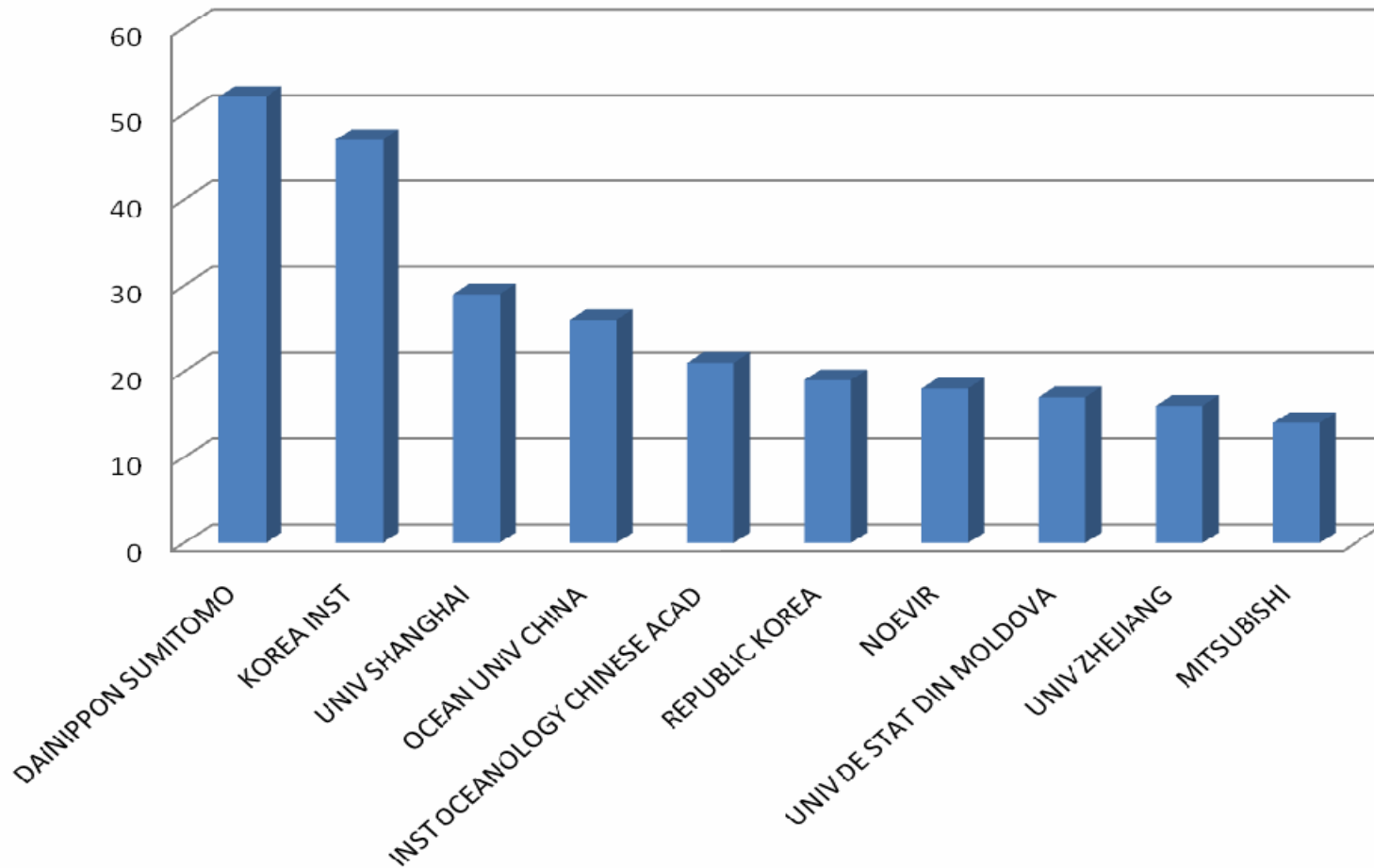
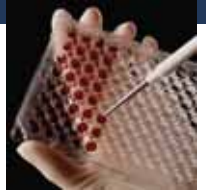
LANL’s acoustic technology utilizes sound waves to concentrate the harvested algae mixture and to extract the oil from algae cells. Combining these processes greatly reduces the energy required to extract algal oil and eliminates the need for chemical solvents.

Bryan Willson, Chief Technology Officer of Solix commented, “The agreement with LANL will allow Solix to quickly move forward with extracting oil from algae crops harvested at our Coyote Gulch Production Facility.” He continued, “We will be able to apply and expand upon LANL’s valuable research in our effort to develop energy efficient extraction processes of algal oil which is the next key step in bringing to market a commercially viable alternative to petroleum based fuels.”



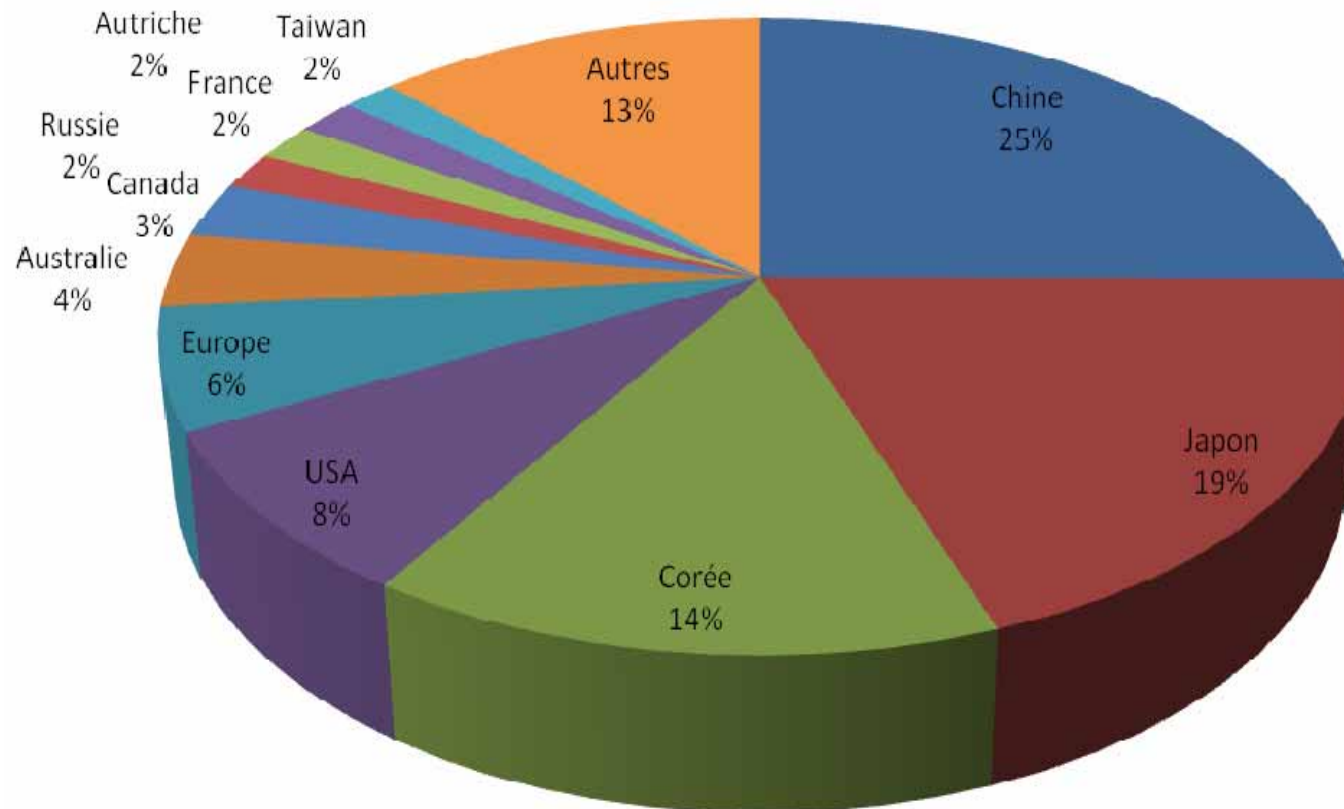
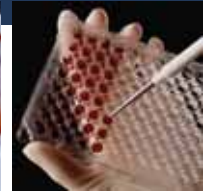
Résumé

Top 10 déposants



Résumé

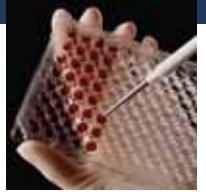
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Conclusion

Recommandations

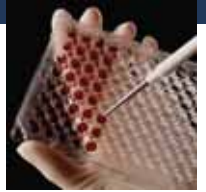
- Recherche de brevetabilité
 - La plupart des compagnies déposent dans une autre langue que l'anglais (chinois, coréen, japonais)
 - PCT publication sont indexées même si en langue étrangère
 - Publications JP, KR, CN peuvent ne pas être localisées
 - Procéder à une recherche de l'art antérieur dans les bases de données internationales et non seulement aux USA, Canada

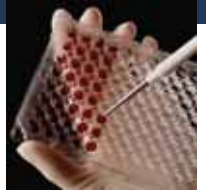


Conclusion

Recommandations

- Liberté d'exploitation
 - Liberté d'exploitation au Canada ?
 - Ex: le compétiteur chinois peut ne pas avoir déposé (être entré en phase nationale) au Canada
 - Possibilité d'obtenir un brevet au Canada même si compétiteur a déposé en Corée (pas d'entrée en phase nationale)
 - Ex: premier déposant à être un « vrai » inventeur, mais il peut y avoir plusieurs inventeurs simultanément dans différent pays





MERCI !

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