

ALICE2 Case Study

Bio-pharmaceutical principle: RedCLARA links high efficiency laboratories in Chile and Brazil for the development of human spermicidal.

To date, contraceptives elaboration has been focused on the production of female drugs and devises; an effective alternative with no side-effects for males had not been found. But, by applying science to popular wisdom in the search for a solution, a team of Chilean scientists

developed an active principle and its analogue with spermicidal properties based on a peptide extracted from the poison of the *Latrodectus mactans* spider.

"In terms of contraception, the alternatives available for men are an operation or the use of condoms. Until now, there is not any spermicidal molecule legally accepted by international bodies like the Food and Drug Administration (FDA)", points out Fernando Romero, doctor in molecular biology and professor of neurobiology at the Universidad de La Frontera de Chile (UFRO), who is also the leader of the *"Bio-pharmaceutical Principle, human spermicidal obtained from Latrodectus mactans"* project.

The arachnid's poison is a cocktail of toxins that generate a set of systemic reactions, of which Chilean scientists managed to isolate specific molecular fractions to obtain an alternative product that inhibits the capacity to fertilise and which also behaves in an efficient and harmless way. This fact opens up the pioneering possibility in the field of

masculine reproductive health, beyond surgical interventions or the use of condoms.

Together with researchers from the Universidad Federal de Sao Paulo (Brazil), the project recently started with the application of tests with molecular structures. To this end, they make use of the UCRAV platform, which is executed by means of the REUNA (Chilean academic network) connection to RedCLARA. *"A researcher is no longer a person shut away in his/her laboratory; by no means; the more connected to the scientific world around you, the faster you move forward, because the world is giddier"*, highlights Dr Romero.

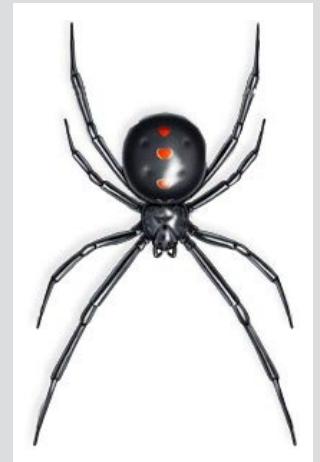


The obtained medicine's potential market (sexually active men, who will receive a better alternative to perform a major role in family planning) includes 3.193.277 users in Chile, 44.094.055 in Brazil, 82.090.975 in the USA and 180.309.021 in Europe.

Native from Chile

As a parallel result of the research, scientists discovered that the spider used in the study, popularly known as “red bottom”, is native from Chile, which is why its classification was changed in 2009. *“We made a contribution to scientific knowledge. The Lactrodectus mactans spider was zoologically misclassified as mactans, but it is native from Chile and corresponds to a variety of mirabilis. So we have a Lactrodectus mirabilis; this is something new, a recent classification”*, enthusiastically tells Doctor Romero.

According to the Universidad de Concepción’s Arachnology Laboratory, the arachnid, also known as wheat spider, fierce spider and black widow –because of its habit of eating up the male after copulation- lives in pasturelands and wheat fields in the Bío-Bío and Araucanía regions in south-central Chile.



Networked collaboration and creation

UCRAV, Shared Use of High Value Resources, is remote instrumentation services platform developed in Chile by the National University Network, REUNA. Built with open code tools, through the network, it enables the remote visualisation of organic and inorganic samples analyses, thus creating and promoting a collaborative space between researchers and users. Its structure is made up by high value scientific instrumental distributed across the laboratories in the universities that are part of the grid, and which are interconnected by the academic network to a central server located in REUNA.

Mais informações:

RedCLARA – www.redclara.net

REUNA | www.reuna.cl

UCRAV | www.ucrav.cl

UFRO | www.ufro.cl

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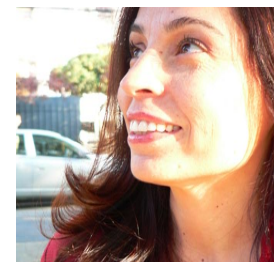


“Today, one of the fundamental aspects in the development of research is the capacity to have connectivity with other high efficiency laboratories, something that goes beyond the internet system; RedCLARA makes it possible that through the connection, in my computer I can watch the experiments that are being carried out in Temuco or in Brazil. Nowadays, there is no way of doing that except with this connectivity”.



Dr Fernando Romero, Universidad de La Frontera, Chile

“As REUNA, the vision we have regarding UCRAV and its scientific use is that it effectively makes it possible to generate virtual laboratories; to join, by means of academic networks, laboratories that are distributed across the globe to turn them into one single laboratory with shared scientific equipment and, above all, with teams of people who work together, discussion and analysing the results in real time. That is the main contribution: you share equipment and you share knowledge through academic networks”.



Paola Arellano, REUNA’s Executive Director, Chile

“For a researcher, it is crucial to be able to collaborate with peers in different institutions; connectivity overcomes the mobility problem. It is a benefit in terms of time and resources”.



Alberto Montecinos, Software Development Engineer at REUNA