

Scientists create nanoproduct to fight the common tick

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The common tick is a parasite whose bite damages the flesh and skin of

cattle and affects the quality of their milk. Additionally, it can transmit infections to humans. However, this vector is difficult to monitor, because some of the current strains are highly resistant to the insecticides offered in the international market.

To address this problem, a scientific group at the National University of Mexico (UNAM) designed a new external antiparasitic in the form of nanoparticles to target the [tick](#). The laboratory has shown it to be less toxic than products currently marketed, and it does not harm the environment or the people who handle it.

Chemists Enrique Angeles Anguiano and Fernando Alba Hurtado, who head the scientific group at the UNAM, explained that the components of the antiparasitic are not absorbed by the gastrointestinal tracts of cattle, so they do not circulate in the bloodstream or affect the quality of their meat or milk, which can occur with the products currently used.

They also explained that some antiparasitics are of such toxicity that when excreted by the cattle, they prevent the growth of grass on the site, while also killing beneficial beetles and bees (among other insects), affecting the biological chain.

The tick represents a health problem as it carries different diseases, but it also represents economic losses, and has for many years, which has led to the interest of many scientific researchers worldwide.



"Today in Mexico we have several tick strains that are resistant to almost all compounds on the market, so we designed a series of antiparasitic nano-products, which have drawn the attention of international laboratories, because they deliver efficiency of 99.5 percent, practically eliminating the tick in any of its four stages of life: nymph, pupa, adult and egg," says Angeles Anguiano.

To defeat the high resistance that ticks have to several chemicals, international laboratories currently make cocktails that include various compounds, but this results in high costs and is highly toxic to the environment, cattle, and the people who handle the product.

The head of the scientific team explains that the synthesis of the new product consists of a single step, or "bucket chemistry," as its preparation is simple. "The methodology implemented in the laboratory allows us to increase performance, plus we have very stable, pure products of low toxicity.

"We can also say that this is a specific antiparasitic for ticks because if the compound is applied in adulthood, when the tick is laying eggs, they will be unviable or die in the next stage of life," says the specialist at UNAM.

"The tick is a problem in Latin America, but also in New Zealand and in Canada, where it mainly affects deer, so the damage is of global interest," says Angeles Anguiano.

Provided by Investigación y Desarrollo

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