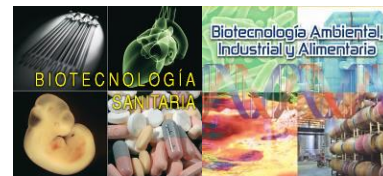

Talk

Identification of bioactive compounds in diabetes and infertility models of *C. elegans*



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Keywords: *C. elegans*; infertility; insulin signaling pathway; polycystic ovary syndrome; POS; age-1

ABSTRACT

Polycystic ovary syndrome (POS) is a complex and heterogeneous endocrine disease characterized by hyperandrogenism, oligo-anovulation and metabolic disorders, including insulin resistance, obesity and type II diabetes. Additionally, POS causes infertility in childbearing age women, making of great interest the search of new treatments and compounds for the improvement of the symptoms of this chronic disease. Despite the definitive pathological mechanism of POS is still unknown, as mentioned before there is a strong relation between the syndrome and different alterations in the insulin signaling pathway. This pathway is evolutionary conserved and it has a homologue pathway in the organism *Caenorhabditis elegans*. Mutations in the insulin receptor homologue *daf-2* gene or in the phosphatidylinositol 3-kinase (PI3K) homologue *age-1*, result in reduction of fertility, being the decrease in progeny sharper in the allele *age-1(mg305)* mutant, in addition to a less pleiotropic effect. We consider this mutant of *C. elegans* a good model to study the insulin pathway, and specifically POS, due to the high degree of conservation of the pathway and the similarities between the phenotype caused by the mutation and the human symptoms.

In view of the above, *age-1(mg305)* is an excellent tool for the screening of extracts of various nature. By doing so, we found that the aqueous extracts of an edible mushroom doubles the progeny in this mutant dose-dependently. The positive results were obtain feeding the nematodes with the extract from eggs and from the L4 larval stage, suggesting that the improvement in the results is larval-development independent. Furthermore, we tested the extract in *daf-2(e1370)* to observe if the progeny-increase effect was related to the insulin pathway and the results were positive, despite being slightly lower. Our next objective is to identify the bioactive compound responsible of the increase in the progeny and to study if the extract rescues the problems in the gonad morphology of the mutant.

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