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Olive compound slows HIV spread



Researchers from the University of Granada and Hospital Carlos III in Madrid, verified that maslinic acid – found in wax from olive skin – inhibits serin-protease, the enzyme used by HIV to release itself from the infected cell into the extracellular environment.

Olive oil has become part of the fight against the Human Immunodeficiency Virus (HIV) – the cause of AIDS – thanks to the research carried out by the Bionat team, from the University of Granada, headed by Prof. Andrés García-Granados, senior lecturer in Organic Chemistry. Their work shows that maslinic acid – a natural product extracted from dry olive-pomace oil in oil mills – inhibits serin-protease, an enzyme used by HIV to release itself from the infected cell into the extracellular environment and, consequently, to spread the infection into the whole body. These scientists from Granada determined that the use of olive-pomace oil can produce an 80% slowing down in AIDS spreading in the body.

Maslinic or crataegolic acid is a pentacyclic terpene with antioxidant and anticancer effects found in wax from olive skin, alongside oleanolic acid. The effects of this compound in the fight against AIDS are simultaneously being studied in the UGR and in Hospital Carlos III in Madrid by a team headed by Prof. Vallejo Nájera.

Maslinic acid innovative properties stem from its powerful protease-inhibition activity, allowing researchers from Granada to register two patents on behalf of the UGR to produce drugs for treatment of diseases caused by protozoa Cryptosporidium – a parasite causing small intestine infection and diarrhoea – and by HIV. The University of Granada has already registered almost ten other patents related to this compound's properties.

Maslinic acid is also a very active compound in opportunistic parasitic infections seriously affecting HIV patients.

In trials carried out by these researchers with the MT2 cell line, for concentrations of 25 and 30 µg/ml maslinic acid inhibited replication of a primary HIV-1 isolate. For 25 µg/ml a decrease in the cytopathic effect and in p24 antigen levels in the supernatant culture medium was detected. For 30 µg/ml, there was total absence of the cytopathic effect and also a decrease of p24 antigen levels.

The UGR Faculty of Sciences hosts a unique maslinic acid production pilot plant where the company MANINVEST S.L. – staffing scientists from the UGR departments of Organic Chemistry, Biochemistry and Parasitology, as well as a coordinating economist – is carrying out research on technology implementation and business programmes tuning aimed at making manitol and maslinic and oleanolic acids programmes more profitable.

Whilst manitol is obtained from olive oil waste water (alpechín) and olive-tree leaves, both acids are extracted from dry olive-pomace oil (orujo) produced at the olive-milling stage during olive oil elaboration process.

To this day, only oleanolic acid – produced in China – has been marketed. However, maslinic acid has gained importance as it is not still on the market and has a greater biological activity.

Prof. Andrés García-Granados's team intends to continue working in the design and implementation of new maslinic acid by-products to fight against HIV, as well as in other innovative research projects financed by the Spanish Ministry of Science and Technology and the Andalusian Regional Government.

Contact: [University of Granada](#) |

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