

Study: Phytochemicals in natural olive oil suppress breast cancer cells

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Olive tree. Photo: The Palestinian Farmers Union (PFU)

Phytochemicals found in extra-virgin olive oil may suppress the gene HER2 which is responsible for the formation of breast cancer cells, say authors of a new study published in the peer-reviewed open access journal [BMC Cancer](#).

Numerous studies over the past few years have tied Mediterranean diets, rich in olive oils, to [a lower risk of heart disease](#), Alzheimer's disease, Type 2 diabetes, Parkinson's disease and cancer. Two researchers in Spain, Javier Menendez of the Catalan Institute of Oncology, and Antonio Segura-Carretero from the University of Granada, set out to investigate which parts of olive oil -- believed to be the key beneficial ingredient in the Mediterranean diet -- were most active in inhibiting growth of breast cancer cells in culture.

"Our findings reveal for the first time that all the major complex phenols present in extra-virgin olive oil drastically suppress over-expression of the cancer gene HER2 in human breast cancer cells," according to Menendez.

Only extra-virgin olive oil contains lignans and secoiridoids, the phytochemicals that inhibit HER2. Phytochemicals are lost if olives are refined using heat or chemical treatments. Menendez and his team separated the oil into fractions and tested them against breast cancer cells in lab experiments. All the fractions containing the major extra-virgin phytochemical polyphenols were found to effectively inhibit HER2.

While the findings offer insights into how olive oil might contribute to lowered breast cancer risk, the researchers caution that the concentration of phytochemicals used to kill cancer cells in culture were much higher than what a human could consume from a diet alone.

Instead, they suggest that lignans and secoiridoids, already safely consumed by people, might be a good basis for future development of drugs to fight breast cancer.

Citation:

Anti-HER2 (erbB-2) oncogene effects of phenolic compounds directly isolated from commercial Extra-Virgin Olive Oil (EVOO)

Javier A Menendez, Alejandro Vazquez-Martin, Rocio Garcia-Villalba, Alegria Carrasco-Pancorbo, Cristina Oliveras-Ferraro, Alberto Fernandez-Gutierrez and Antonio Segura-Carretero BMC Cancer (in press)

Attachment: Phytochemicals, HER2 genes, and breast cancer progression

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