Finger Root Potential to Inhibit Breast Cancer Cells Growth

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Breast Cancer is one type of cancer with the largest incidence. Chemotherapy is often performed for breast cancer treatment. However, chemotherapy has several weaknesses including the incomplete healing, thus causing drug resistance due to the high metabolism of cancer cells. It is characterized by the high level of Glutathione S-Transferase (GST) enzyme.

Therefore, the students' team from Faculty of Pharmacy UGM conducted research to find a solution for curing breast cancer. They conducted the research on the potential of finger root (*Boesenbergia pandurata*) to cure breast cancer.

"Finger root contains Panduratin A compound which is included in chalcone compounds. This compound is proven to inhibit the activity of Glutathione S-Transferase (GST) enzyme," said Aida Fathia on Friday in UGM campus.

Aida Fathia conducted the research with Lisyaratih Anggriani, Rahajeng Fitria Wahyuniputri, Swandika Ayumarta Larasati, and Ziana Walidah. They tried to explore the finger root potential as a chemoprevention agent for inhibiting cancer cells metabolism by in vitro and in silico (computationally). The research was conducted under the supervision of Muthi' Ikawati, M.Sc., Apt.

In the research, they used breast cancer cell 4T1 while the ability of finger root extract in inhibiting the cancer cell was observed through the GST enzyme activity and Reactive Oxygen Species (ROS) level in the cell.

Based on the cytotoxic test, Aida said the result showed the finger root extract is potential to have a cytotoxic effect towards the breast cancer cell 4T1. The decrease of GST enzyme activity level was shown from the increase of ROS concentration in line with the addition of finger root extract concentration in the 4T1 cell.

Based on molecular docking test, the result showed the Panduratin A compound in finger root can bind with GST enzyme. Therefore, it can be concluded that finger root is potential to be chemoprevention agent for breast cancer treatment by decreasing the intracellular GST enzyme expression and inhibiting the cancer cell metabolism.

“This research is expected to be used as a fundamental for advanced research in developing supplement product that can be consumed as a chemoprevention agent for breast cancer,” she added.

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