

The fruit extracts of *Oroxylum indicum* on the breast cancer cells

Benjaporn Buranrat, Faculty of Medicine, Mahasarakham University, Muang District, Maha Sarakham 44000, Thailand, e-mail: buranrat@gmail.com, benjaporn.b@msu.ac.th

Abstract

In this study we examined how *Oroxylum indicum* fruit extracts can be affected the viability and migration of the human breast cancer cells and the mechanism of actions as well. The results, *O. indicum* extract strongly induced MCF-7 cell death in a dose- and time-dependent manner, with IC50 values of 131.3 ± 19.2 ug/mL at 48 h. Moreover, *O. indicum* extracts also caused a dose-dependent decrease in colony forming ability with IC50 values of 51.46 ± 6.43 ug/mL. Further, *O. indicum* extract caused reduction of cell viability and induction of MCF-7 cells apoptosis along with induced ROS formation and increased caspase 3 activity. Moreover, the extracts caused the inhibition migration accompanied with reduced MMP 9 protein expression and decreased MMP 9 and ICAMP1 gene expression. Furthermore, *O. indicum* extracts strongly decreased expression of the cell cycle regulatory protein Rac1. In conclusion, *O. indicum* extract inhibits breast cancer cells viability and reduces cell migration. It could also be valuable for augmenting the activity of chemotherapeutic drugs used to treat breast cancer.

Key words: *Oroxylum indicum*, breast cancer cells, antiproliferation, apoptosis, antimigration

Image

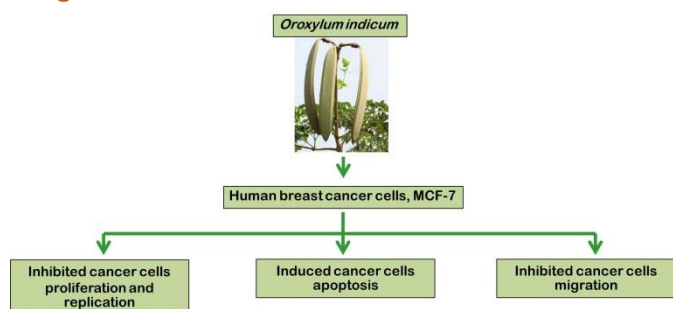


Figure 1. Diagram of the effects of oroxylum indicum on human breast cancer cells.

Recent Publications (minimum 5)

1. Buranrat B, Maieuae N, Kanchanarach W. Cytotoxic and antimigratory effects of Cratoxy formosum extract against liver cancer HepG2 cells. BIOMEDICAL REPORTS 6: 441-448, 2017.
2. Buranrat B, Sangdee A. Antibacterial Activity and Anti-Breast Cancer Cell Line Effects of Sanghuangporus sp.1 Extracts (Accepted, Tropical Journal of Pharmaceutical Research, In Press)
3. Buranrat B, Konsue A. Cratoxy formosum leaf extract inhibits proliferation and migration of human breast cancer MCF-7 cells. Biomedicine and Pharmacotherapy 90: 77-84, 2017.
4. Sangdee K, Buranrat B, Seephonkai P, Surapong N, Sangdee A. Investigation of antibacterial and anti-cancer activities of Streptomyces sp SRF1 culture filtrate. Tropical Journal of Pharmaceutical Research November 16 (11): 2727-2734, 2017.
5. Buranrat B. Inhibition of proliferation and migration of MCF-7 human breast cancer cells by extracts of the edible leaves of Careya arborea Roxb. Submitted to Journal of Traditional and complementary medicine.
6. Buranrat B, Boontha S. Anti-proliferative and anti-migratory activities of bisphosphonates against the human breast cancer cell line MCF-7. Submitted to Biomedicine and Pharmacotherapy (Under review)
7. Buranrat B, Prawan A, Senggunprai L, Kukongviriyapan V. Synergistic effects of simvastatin on anticancer drug-induced inhibition of proliferation and reduction in migration of cholangiocarcinoma cells. Submitted to European journal of Pharmacology.



Biography

Benjaporn Buranrat is a Asst. Prof. at the Faculty of Medicine at the Mahasarakham University. She studied Public Health Science at the Khon Kaen University, and received her Ph.D. in Pharmacology from Faculty of Medicine at the Khon Kaen University, working on mevalonate pathway inhibitors and cancer. She did her postdoctoral work at Penn State University, USA, working on ferritin effects and MCF-7 cancer cells. She has authored or co-authored over 15 manuscripts. Her laboratory has worked in cancer cells death, cell apoptosis, mevalonate pathway.

Email: buranrat@gmail.com,
benjaporn.b@msu.ac.th

Notes/Comments: