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Combination of trichosanthes cucumerina L. compounds: an analysis for novel effects of anticancer cell activities as probes for pharmacological studies

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Prostate cancer is a hormone-dependent cancer and its proliferation is stimulated by endogenous steroid hormones. Aromatase (CYP19) and 5 α -reductase (SRD5A) are the key enzymes that synthesize these hormones. Aromatase converts androgens to estrogens and 5 α -reductase converts testosterone to dihydrotestosterone. Natural compounds present in the *Trichosanthes cucumerina* L. delay prostate cancer progression. These compounds may act as inhibitors of steroidogenesis. *Trichosanthes cucumerina* L. compounds (punicic-, quinic-, gallic-, trans-vaccenic-, and cis-vaccenic-, pelargonidin-, cyanidin-, malvidin-, and delphinidin chloride, epicatechin gallate, epicatechin, kaempferol, and epigallocatechin) were tested in vitro in a hormone-dependent prostate cancer (LNCaP cells) and steroidogenesis (human adrenocortical H295R cells) model. Cells (5000 cells/ml) in 96 well culture plates were exposed to various concentrations of *Trichosanthes cucumerina* L. compounds for 6 days with a fresh re-exposure after 48 hours. For cytotoxic effects, H295R were exposed once to *Trichosanthes cucumerina* L. compounds for 24 hours. Cytotoxicity and antiproliferative effects were measured with WST-1 reduction assay. Catalytic activity of CYP19 was determined in H295R cells by tritiated water-release assay. Punicic acid had an antiproliferative effect in LNCaP cells reducing cell growth by 78, 88, and 91% at 30, 45, and 100 μ M respectively. Kaempferol reduced proliferation by 30, 48, and 69% at 15, 30, and 100 μ M respectively. Punicic acid was not cytotoxic in H295R cells, and at 30 μ M, decreased aromatase activity by 75% compared to control. CYP19 was not

express in LNCaP cells. Preliminary consequences show that various natural compounds found in the *Trichosanthes cucumerina* L. have an antiproliferative effects in LNCaP cells and punicic acid acts as an aromatase inhibitor in H295R cells.

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