Title: Evaluating six selected medicinal plants for breast cancer treatment

Author: Belete Tewabe, Minbale Gashu, Mensfin W/aregay

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Abstract

Breast cancer is the leading cause of cancer worldwide. The high expenses associated with chemotherapy as well as its side effects make the management of breast cancer a daunting challenge. Recent investigations into cancer treatment have revealed that plant extract demonstrate potential anti-cancer properties through different pathways. In these studies roots, fruits and leaves of six selected medicinal plants were used for in vitro models to evaluate phytochemical components, antioxidant activities and potential cytotoxicity on CMF-7 breast cancer cells. The antioxidant activities were evaluated by using DPPH and reducing power assays. The results of the antioxidant study revealed that the selected plants were found to be effective in scavenging 1, 1-diphenyl-2-picrylhydrazyl (DPPH) free radical and reducing Fe^{+3} to Fe+2.. The antioxidant activities when compared among roots, leaves and fruits of the plants the potency of these extracts were found to be in the order of ascorbic acid > Kalanchoe petitiana > Curcuma longa > Zingiber officinale >Embelia Schimperi > Brucea Antidysenterica ≥ Withania Somnifera. Exceptionally, Kalanchoe petitiana ethanol extract possessed all the tested secondary metabolites such alkaloids, terpenoids, saponin, phenols, tannins, flavonoids, and trepenoids. Finally, the cell viability results indicate that Curcuma longa/Turmeric (Erid), Zingiber officinale /Ginger (Zenjib), Withania somnifera (Gizawa) and Kalanchoe petitiana (Indahula) were the most effective plants against CMF-7 breast cancer. Therefore, the present findings strengthen the potential of the selected plants as a resource for the discovery of novel breast anticancer and antioxidant agents.

Keywords: medicinal plants, breast cancer, CMF-7, antioxidant