TOCOTRIENOL AND CURCUMIN ENRICHED HEALTH SUPPLEMENT IN CAPSULES FOR ORAL CONSUMPTION

KANGA RANI SELVADURAY; KALANITHI NESARETNAM; PREMDASS RAMDASS; FU JU YEN; PUVANESWARI MEGHANATHAN; GHAZALI ABDUL RAZAK and ONG THEAN HUAT

MPOB INFORMATION SERIES • ISSN 1511-7871 • JUNE 2015

MPOB TT No. 585

fluid formulation wherein the main ingredient is tocotrienol, and curcumin is added to enhance the anti-cancer effects of tocotrienols. The composition is useful for the treatment or

prevention of a cancer, a tumour or an inflammatory disorder, particularly breast cancer.

In one embodiment of the present invention is a composition containing an active amount of tocotrienol as the main ingredient; and an addition of curcumin, for prevention or inhibition of a cancer and/or a tumour in a mammal, preferably breast cancer, wherein curcumin is added to the composition to enhance the anti-cancer effect of the product.

It is to be noted that tocotrienols have potent anti-cancer and anti-inflammatory effects and the addition of curcumin enhances these effects two-fold in the product (*Figures 1, 2* and 3).

THE TECHNOLOGY

- Production of a capsule containing a mixture of tocotrienol and curcumin at a certain combination for optimum synergistic effects.
- The encapsulated compound containing the mixture for oral consumption.

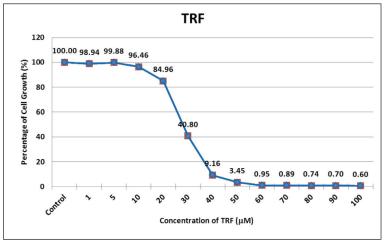


Figure 1. Percentage of MCF-7 human breast cancer cell growth with varying concentrations of TRF.

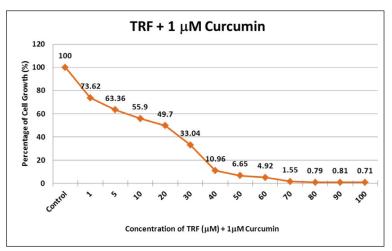


Figure 2. Percentage of MCF-7 human breast cancer cell growth with varying concentrations of TRF with 1 μ M curcumin.





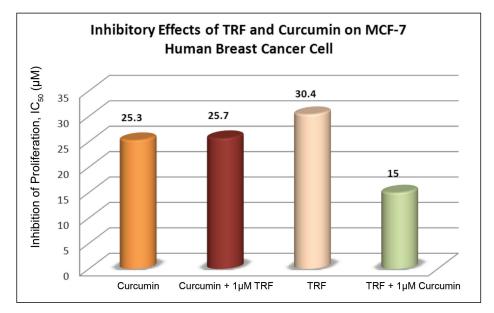
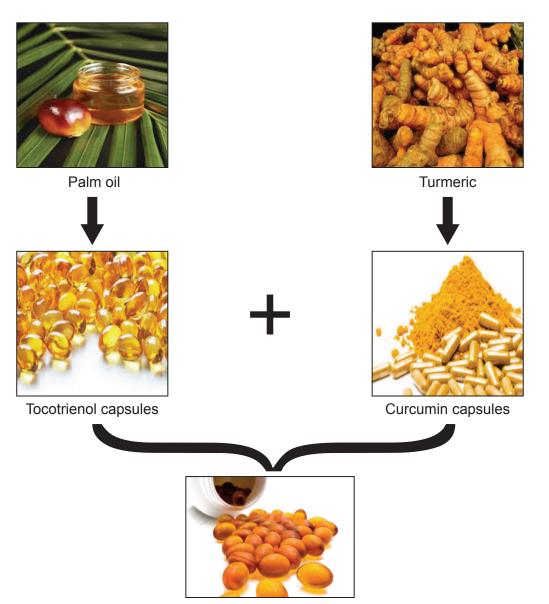


Figure 3. Inhibitory effects at 50% (IC₅₀) of curcumin, curcumin + 1 μ M TRF, TRF and TRF + 1 μ M curcumin on MCF-7 human breast cancer cells.



THE PRODUCT

Tocotrienols+Curcumin capsules

THE BENEFITS

- A health supplement for consumers with enhanced activity based on synergistic effects of tocotrienols and curcumin.
- A 2-in-1 convenient and cost-effective health product.

REFERENCES

LEV-ARI, S; ZINGER, H; KAZANOV, D; YONA, D; BEN-YOSEF, R; STARR, A; FIGER, A and AR-BER, N (2005). Curcumin synergistically potentiates the growth inhibitory and pro-apoptotic effects of celecoxib in pancreatic adenocarcinoma cells. *Biomed Pharmacother, 59 Suppl 2*: S276-280.

Malaysian Patent Application No. PI2001000993, patent grant No. 8906960. Synergistic effects of tocotrienols and curcumin.

MCINTYRE, B S; BRISKI, K P; TIRMENSTEIN, M A; FARISS, A M W; GAPOR, A and SYLVESTER, P W (2000). Antiproliferative and apoptotic effects of tocopherols and tocotrienols on normal mouse mammary epithelial cells. *Lipids*, *35*: 171–180.

MENON, L G; KUTTAN, R and KUTTAN, G (1999). Anti-metastatic activity of curcumin and catechin. *Cancer Lett*, *141* (1-2): 159-165.

NESARETNAM, K (2008). Multitargeted therapy of cancer by tocotrienols. *Cancer Lett*, 269: 388-395.

NESARETNAM, K; SELVARAJAN DORASAMY and PHILIPPA DARBRE (2000). Tocotrienols inhibit growth of ZR-75-1 human breast cancer cells. *Int. J. of Food Science. Nutr.*, *5*1: S95-103.

NESARETNAM, K; GUTHRIE, N; CHAMBERS, A F and CAROLL, K K (1995). Effect of tocotrienols on the growth of a human breast cancer cell line in culture. *Lipids*, *30*: 1139-1143.

RAMSEWAK, R S; DEWITT, D L and NAIR, M G (2000). Cytotoxicity, antioxidant and anti-inflammatory activities of curcumins I-III from Curcuma longa. *Phytomedicine*, *7*(4): 303-308.

SEN, C K; KHANNA, S and ROY, S (2006). Tocotrienols: vitamin E beyond tocopherols. *Life Sci*, *78*: 2098. For more information, kindly contact:

Director-General MPOB 6, Persiaran Institusi, Bandar Baru Bangi, 43000 Kajang, Selangor, Malaysia Tel: 03-8769 4400 Fax: 03-8925 9446 www.mpob.gov.my