

Beta Sitosterol & Prostate Cancer

Awad et al. demonstrated that beta sitosterol is more effective than campesterol on the growth and dissemination of prostate cancer cells. Stabilized rice bran derivatives are the richest source of beta sitosterol. The consumption of stabilized rice bran derivatives may be advantageous to prostate cancer patients.



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1: Eur J Cancer Prev. 2001 Dec;10(6):507-13.

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In vitro and in vivo (SCID mice) effects of phytosterols on the growth and dissemination of human prostate cancer PC-3 cells.

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The dietary effect of phytosterols (PS) versus cholesterol on the growth and metastasis of the PC-3 human prostate cancer cells in SCID mice was studied. Also, their direct effect on the growth and migration of these cells in vitro was analysed. In the in vivo experiment, SCID mice were fed a diet containing 2% of either PS mixture or cholesterol plus 0.2% cholic acid and implanted with 2×10^6 tumour cells per mouse. Tumour growth was monitored for 8 weeks post inoculation. Animals fed the PS diet had tumours 40-43% smaller than those fed the cholesterol diet. Furthermore, the number of mice with lymph node and lung metastasis was almost one-half that of the cholesterol-fed group. In the in vitro studies, both beta-sitosterol and campesterol inhibited the growth of PC-3 cells by 70% and 14%, respectively, while cholesterol supplementation increased the growth by 18% when compared with controls. PS inhibited the invasion of PC-3 cells into Matrigel-coated membranes by 78% while cholesterol increased it by 43% as compared with the cells in the control media. Migration of tumour cells through 8 microm pore membranes was reduced by 60-93% when the PC-3 cells were in PS media, as compared with a 67% increase after cholesterol supplementation. PS supplementation reduced the binding of PC-3 cells to laminin by 15-38% and fibronectin by 23% while cholesterol increased binding to type IV collagen by 36%. It was concluded that PS indirectly (in vivo as a dietary supplement) and directly (in tissue culture media) inhibited the growth and metastasis of PC-3 cells. beta-Sitosterol was more effective than campesterol in offering this protection in most of the parameters studied.

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