INFLUENCE OF DIETARY FIBRE SOURCES ON COLON CANCER IN RATS

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Colon cancer is one of the most frequently occuring malignancies in populations on a "Western diet", Australia being among the high risk nations. Diet is a major environmental factor influencing cancer. Epidemiologist claim that the incidence could be reduced by 30 - 50% by optimal dietary regime.

The potential of wheat and barley bran as controlling factors in colon cancer was investigated. Male Sprague Dawley weaner rats were allocated to four groups and fed with respectively 5% and 20% of the two bran sources varying the fat content inversely in a AIN 76 purified diet. The diets were maintained for six months. DMH was used to induce tumours in the small and large intestine.

Bran source	Fat content	n	Incidence	Total tumours per 10 rats
5% barley bran	20%	10	100%	26
20% barley bran	5%	9	100%	20
5% wheat bran	20%	9	67%	14
20% wheat bran	5%	10	90%	23

It was found that wheat bran was significantly more effective than barley bran in lowering tumour incidence, when added 5% to a 20% fat diet. This was not seen when wheat bran was added as 20% to a 5% fat diet. Wheat bran is a rich source of insoluble dietary fibres and contains 40% total dietary fibre (TDF). Barley contains mainly soluble fibres and 13% TDF. The fact that wheat contains more insoluble fibre than barley may explain why it is more effective in decreasing the tumour incidence. However, the level of TDF may be responsible for the observed effect. Future studies are being conducted to assess which factor is of importance.

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