



As typically South African as 'boere-wors' and the vuvuzela, rooibos tea has always been a favourite. Good news for tea lovers is that this beverage – and honeybush tea – may harbour potent health benefits.

IZELLE THEUNISSEN reports.

Tea, anyone?

Once started, cancer can be a difficult disease to control or cure. So, for many decades scientists have tried to find that elusive pot of gold at the end of the rainbow: a reliable way of preventing cancer from taking hold.

In an ideal world, we would all be able to avoid substances and environmental conditions that can cause us to develop cancer. But, in reality, we are all exposed to cancer-causing substances on a daily basis – be it from sunlight, braaivleis or air pollution.

The search for a way of preventing cancer has led scientists to look for ingestible substances that could either prevent cancer from developing, or interfere with its growth to such an extent that the cancer is no longer a threat.

Studies with black and green (unfermented black) teas in other countries have proved promising: green tea, es-

pecially, has been shown to be a strong antioxidant and good at preventing cancer formation in animals.

Inspired by these results, MRC researcher Dr Jeanine Marnewick decided to put the rooibos, and the lesser-known honeybush tea, to the test. 'Rooibos tea has been used by South African communities for centuries and there are many stories of how it was used against certain human ailments,' she says.

Her study results are convincing. Both rooibos and honeybush tea offered protection against one of the first steps in the potential onset of cancer: mutagenesis. This is the process whereby the genetic material (or DNA) of a cell is altered by excessive exposure to mutagens (cigarette smoke, sunlight or chemical substances such as hydrogen peroxide). This change in the DNA is

known to be a major cause of cancer.

The tea offers protection in various ways. It is a potent anti-oxidant, which means that it 'mops up' free radicals. These are highly reactive molecules that are also produced during normal bodily processes. Free radicals can damage the DNA of cells, but anti-oxidants bind to the free radicals and inactivate them before they can cause any damage.

The tea also increases the level of natural anti-oxidants in the liver, which means that the liver's anti-oxidant status is increased.

Furthermore, the tea stimulates the liver enzymes that metabolise (break down) carcinogens when they enter the body. Carcinogens are cancer-causing substances.

Dr Marnewick, who is a researcher in the MRC's PROMEC research unit, obtained dramatic results with a skin cancer test. Here, skin cancer was induced in two groups of test mice. One group's skin was topically treated with rooibos or honeybush extracts, while another group received no treatment. Those where the herbal teas were applied showed 70% fewer tumours. The tumours were also smaller and their development was delayed when compared with the untreated group..

Similar results were seen in a liver cancer model: rats that drank the rooibos tea (at a similar concentration that humans drink) had fewer and smaller pre-cancerous lesions in the liver than those who drank water.

The results of Dr Marnewick's studies (which earned her a PhD) have been published in three international academic journals.

So what does all of this mean? Dr Marnewick is quick to point out that the herbal teas aren't magic bullets. 'Rooibos and honeybush teas provide a natural, rich source of compounds beneficial to your health and people should see these herbal teas as part of a healthy, sensible lifestyle that could alleviate the risk of cancer, and reduce its possible extent,' she says.

In the meantime, Dr Marnewick is taking a safe bet: she's drinking a litre of rooibos tea a day!

Fact file

- Rooibos (*Aspalathus linearis*) is indigenous to the Cape mountains, thriving in course, low-acid soil where the summers are hot and dry.
- Clanwilliam and Wupperthal are South Africa's premier rooibos-producing areas.
- When fermented or processed, the leaves turn a rich red colour – leading to the name rooibos, which means 'red bush'.
- Rooibos tea contains no caffeine and is very low in tannin.

ILLUSTRATION SIMON



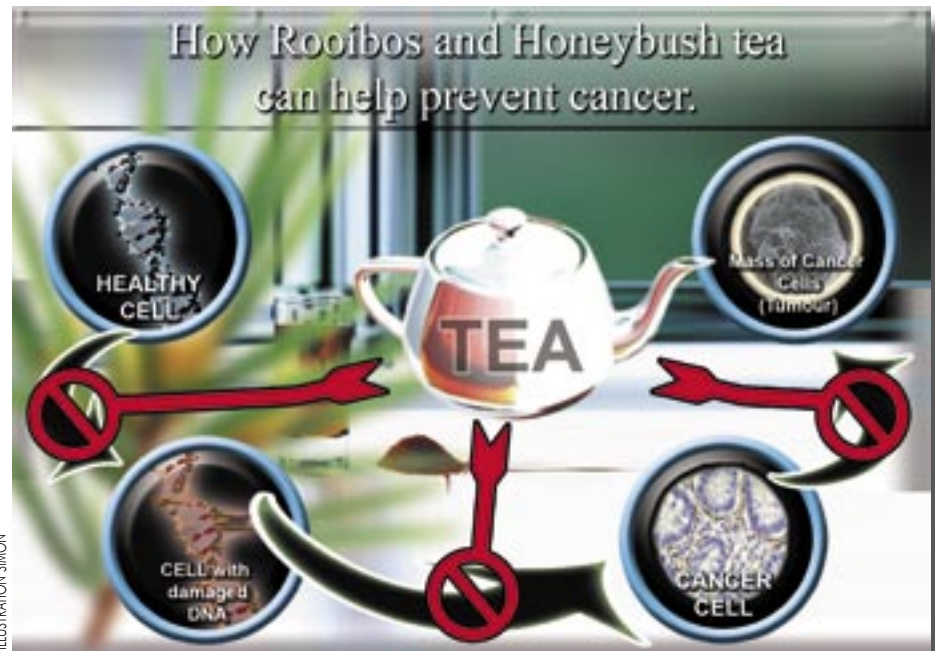
Step 1: When a healthy cell is excessively or continuously exposed to external factors like cigarette smoke, alcohol, the sun, pesticides, chemicals in our environment, viruses or even a high fat/high salt diet, it experiences irreversible damage to its genetic material (DNA). This is the first step in cancer development, but it does not necessarily lead to cancer.

Step 2: With even more exposure to these external factors, the cell may lose its ability to control the growth process and become a cancer cell.

Step 3: If the exposure continues, the cancer cell can start to multiply and form a mass of cells, called a tumour.



ILLUSTRATION SIMON



Step 1: Rooibos and honeybush tea may prevent the healthy cell from undergoing mutagenesis (by mopping up free radicals, increasing the antioxidant capacity of the liver and helping the liver to produce enzymes that can "break down" carcinogens).

Step 2: The herbal teas may prevent a cell with damaged DNA from becoming a cancerous cell.

Step 3: Rooibos and honeybush teas may prevent cancerous cells from multiplying and forming a cancerous tumour.