

Black ginger to combat cancer

This herb, which has traditionally been used to improve wellness, is now being investigated for its ability to kill cancer cells.

By Dr MAISARAH ABDUL MUTALIB

FOR generations, plants have been used to heal.

From forest floors to kitchen cabinets, traditional herbs have offered natural solutions to everyday ailments.

One such root is showing particular promise in the lab: black ginger, also known by its scientific name *Kaempferia parviflora*.

Commonly used in South-East Asia to boost energy and improve overall wellness, black ginger is now being explored for its potential role in combating breast cancer.

This herb contains a group of natural compounds known as polymethoxyflavones (PMFs).

These are powerful antioxidants that could help protect the body's cells, reduce internal inflammation and slow the growth of harmful cells.

These effects are particularly important in cancer research, where both damage to the body's



Purified PMFs that have been isolated from black ginger are seen here in a petri dish as crystalline structures. — Dr MAISARAH ABDUL MUTALIB

cells and long-term inflammation are known to contribute to cancer development.

What makes PMFs particularly exciting is their ability to selectively target cancer cells.

Our findings from early lab experiments show that these compounds may trigger apoptosis, a normal body process where damaged or unwanted cells are programmed to self-destruct.

More importantly, this self-destruction was observed in breast cancer cells, but not the surrounding healthy cells.



Certain bioactive compounds in black ginger are being investigated for their potential in killing breast cancer cells. — Wikimedia Commons

That is a significant advantage over conventional therapies, which often affect both cancerous and healthy cells.

Of course, raw black ginger isn't medicine.

The science lies in how we extract and refine the specific bioactive compounds.

Not all extractions are equal. PMFs are sensitive and can easily degrade if exposed to improper conditions, resulting in a loss of potency and therapeutic value.

Our team has developed optimised extraction techniques to isolate PMFs with the highest possible purity and stability.

Every step in our process, from solvent selection to purification methods is carefully designed to preserve the compounds' biological activity and its therapeutic potential.

This level of precision is essential to ensure their effectiveness in future applications.

Extracting PMFs is just the beginning.

Even the most powerful compound won't work if the body cannot absorb it.

PMFs are not very water-soluble, which makes it difficult for

them to be effectively delivered to their target, the cancer cells.

To solve this, we turn to encapsulation.

Soy protein isolate is used as a natural carrier to enclose the PMFs, protecting them from breakdown and improving their absorption in the body.

This soy-based delivery system not only enhances stability, but also ensures the compound remains effective until it reaches its intended site of action in the body.

Before choosing soy protein, we tested a variety of delivery vehicles, including liposomes and synthetic polymers.

Soy protein proved to be the safest, most stable and most efficient option aligning with our commitment to natural food-based research.

The preliminary results are promising.

In our controlled lab tests, the encapsulated PMFs demonstrated cytotoxic (cell-killing) effects on breast cancer cell lines, while having minimal impact on normal cells.

Our research is still ongoing, but the vision is clear: to develop safe, effective and accessible

plant-based alternatives that support conventional treatments.

As interest in complementary and integrative medicine continues to grow, we believe black ginger could play a meaningful role in the evolution of cancer care.

This reflects our belief that nature and science can work together.

By combining traditional wisdom with clinical precision, we hope to turn this powerful root into a future ally for patients seeking holistic care.

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