

Ginger: A Natural Remedy for Pancreatic Cancer

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ABSTRACT

Cancer has occurred as a major health issue worldwide, commonly causing deaths in developed as well as underdeveloped countries. It may be characterized by uncontrolled cell development in which cells divide uncontrollably to create tumors that may invade other areas of the body. Lifestyle modifications are significant contributors to the emergence of cancer. Based on the research, risk factors include becoming overweight or obese, being insufficiently active, smoking, consuming alcohol, and eating improperly i.e., a diet heavy in red and processed meat and low in fiber. The traditional medicine of Pakistan's Himalayan area has long made use of a variety of medicinal plants. In underdeveloped nations, where about 80% of the world's population resides, plants are used to cure a variety of illnesses, including infections, pain management, wound healing, cancer, reproductive disorders, skin infections, digestive problems etc. The use of unprocessed and phytochemical extracts obtained from medicinal plants is becoming more acceptable and preferred, maybe as a result of their reduced costs of manufacturing, accessibility, and availability as well as their generally lower toxicity. Ginger is a rhizomatous perineal plant with therapeutic characteristics against a wide range of conditions, including arthritis, painful menstrual cycles, nausea, and others. Additionally, the culinary and baking sectors employ it as a common ingredient. Consequently, the objective is to investigate ginger's anticancer properties on the presumption that they largely affect cancer cells while having little to no impact on healthy cells.

Description

Cancer is the result of an unchecked cell proliferation in the body. Cancer may appear practically anywhere in the trillions of cells that make up the human body. Whenever the body requires new cells, cells divide to produce them. When existing cells pass away due to ageing or injury, new ones are replaced. Sometimes, this systematic procedure goes wrong, leading wounded cells to grow when they don't need to. These cells have the ability to grow into tumors, which are tissue lumps. Masses might stay in one area or move to other organs. The causative agents include chemicals, toxic compounds exposure, ionizing radiations and some pathogens. The general symptoms associated with cancer both in humans and animals include exhaustion, diminished appetite, pain, unexpected hemorrhages, sustained coughing and raised body temperature [1].

Cancer is a major global health issue and is continuing to advance in Pakistan, where it has emerged as one of the leading causes of death. International Agency for Research on Cancer (IARC) has revealed that there are 0.32 million prevalent instances of cancer, 0.11 million cancer deaths, and 0.18 million newly diagnosed cases of cancer in Pakistan. South Asian countries have higher incidences of cancer in males because of exposure to environmental contamination like pesticide inhalation during spraying in field, tobacco smoking, etc. It is predicted that by 2030, there will be 7.1 million new cases of the disease in Asia if present preventive steps are not taken and the disease continues to progress. Death due to cancer is common in animals. For some species, almost 20 to 40% of the adult population die due to cancer each year [2].

Neoplasia, which includes cancer of the skin, nose and throat, mouth, digestive system, lungs, liver, kidneys, reproductive system, bone, blood and brain, happens rarely in companion birds of all ages. As companion parrots get older, cancer is more likely to occur. Some forms of cancer is more common in pets than in other animals and birds. Dogs are most commonly seen with breast, skin, bone, mouth, connective tissue and lymphatic tissue tumors. At some point in their lives, one in four canines will get cancer.

Pancreas is an organ and a gland present in the abdomen that produces and releases substances in the body. It is vital for the process of turning the ingested food into energy to be utilized by the body tissues. Its exocrine part produces different digestive enzymes, ions and water that aids in metabolism and the endocrine part sends two hormones i.e., insulin and glucagon to control the level of glucose in the blood [3].

Pancreatic cancer is the third most frequent reason for cancer-related fatalities. It accounts for 2% of all cancer cases and 5% of all the

cancer-associated fatalities. According to statistics, 97.8% of pancreas cancer cases in Pakistan have resulted in death and 10% of all pancreatic cancers are genetic. By 2030, it is anticipated that cancer will surpass lung cancer as the second-leading cause of cancer-related mortality [4].

The risk factors include age, obesity, smoking, blood group, excessive alcohol consumption, pancreatitis and genomic involvement. Smokers are at about two times higher risk for developing pancreatic cancer. Long-term diabetes mellitus also leads to pancreatic cancer. Pancreatic cancer is a fatal tumor because of its aggressive nature. It mainly affects elderly individuals (40–85 years), mostly men. Its prevalence has been progressively increasing during the last few years. One of the deadliest types of cancer, it spreads swiftly to neighboring organs and has no early signs, making it particularly challenging to identify. Through inherited or acquired anomalies, sudden alterations in cancer-related genes can result in the development and spread of pancreatic cancer [5].

There is a serious deficiency of treatments at the moment; newly authorized combination chemotherapies, like FOLFIRINOX and gemcitabine/nab-paclitaxel, barely increase the probability of survival by 2-4 months and are associated with negative side effects. These side effects include hair loss, easy bleeding, nausea, vomiting, constipation, decreased hunger, tiredness, headache, stomach pain, muscle pain and problem in seeing, hearing and walking [6]. Even though a lot of animals respond well to chemotherapy, some can experience adverse intestinal effects like vomiting, diarrhea or reduced hunger. For this reason, it would be preferable if natural medicinal herbs are used for treating cancer because these would have no side effects.

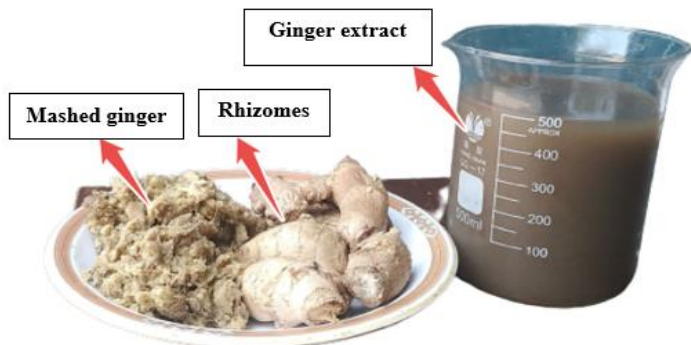
The majority of life-saving medications, including those used to treat cancer, are derived from medicinal plants. The utilization of herbal remedies is described in different religions including Islam, Hinduism and Christianity. In underdeveloped countries, up to 80% of the population predominantly depend on herbal remedies for their healthcare using medicinal plants. These are effective, safe and cost-effective as well [7]. Different plants used for the treatment of cancer include Neem, Ginger (Adrak), Black Pepper (Kali mirch), Moringa (Sohanjna), Dhamasa booti, Pomegranate seed (Anar dana), Black cumin (Kala zeera), Sesame seed (til ka beej), Linseed (Alsi), Mint (Pudina), Aniseed (Sonf) and many others [8]. Hazrat Abu Huraira (R.A) narrated:

I heard Allah's Prophet Muhammad (PBUH) saying, "There is healing in black cumin for all diseases except death."

Ginger is widely used in food as a spice throughout the world. It has long been used in Chinese, Ayurvedic and Tibb-Unani herbal

remedies. It is rich in active ingredients like polyphenols and terpene components. The three main phenolic compounds that may be identified in ginger are paradols, shogaols, and gingerols [9]. Gingerols, the main flavonoids in raw ginger, may be heated or stored for a long time to transform them into their equivalent shogaols. Ginger also has lipids, organic acids, polysaccharides, and unprocessed fibres. The root part of ginger is utilized to treat different conditions like nausea, rheumatism, nervous disorders, gingivitis, toothaches, asthma, stroke, constipation, and diabetes. It should be consumed 4 grams per day [10].

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Studies on specific cases suggest that it may be effective in treating migraines and osteoarthritis. Given its extensive history of usage in cuisine, ginger is thought to be safe for supplementary use. Ginger is a herb that is used to cure cancer in addition to being a warming treatment, painkiller, anti-inflammatory, and herb that lowers cholesterol. Randomized controlled research back up its benefits in minimizing motion sickness [11]. The extract made from rhizomes of ginger contains components that block the growth of cancer cells. Since powdered and mashed ginger is more concentrated, 2 teaspoons per day are enough to use.

Because of its medicinal effects, ginger is on the list of foods that are Generally Recognized as Safe (GRAS). Future research should look into the biological functions and associated modes of action of additional bioactive substances that may be isolated from ginger. In particular, well-designed clinical trials on ginger and its many bioactive components are required to show its efficacy in treating certain human illnesses. Currently, a research project “Anti cancerous efficacies of medicinal plants herbs and their active ingredients: A step towards the development of new anti-cancer drug or remedy” is being carried out at College of Veterinary and Animal Sciences (CVAS) Jhang campus. If anyone wants to seek help regarding cancer, he/she can contact the team at Clinical Medicine Department, CVAS Jhang Campus.

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