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Dr. Khalid Eqbal
Assistant Professor,
Department of Moalajat,
Sufiya Unani Medical College
Hospital and Research Centre,
Bara Chakia East Champaran,
Bihar, India

Dr. Jawed Egbal
Medical Officer, MHC
Majhauiliya, West Champaran,
Bihar, India

Dr. Tabassum Jahan
Chairman, Majhauiliya Health
Care Centre West Champaran,
Bihar, India

Dr. Md. Shamim Akhtar
Medical Officer, PHC, Lauriya,
West Champaran, Bihar, India

Dr. Arvind Kumar
DM (Medical Oncology,
AIIMS, New Delhi), MD
(Medicine-PMCH, Patna)
Director and Consultant
Medical Oncologist, Buddha
Cancer Centre, Patna, Bihar,
India

Corresponding Author:
Dr. Khalid Egbal
Assistant Professor,
Department of Moalajat,
Sufiya Unani Medical College
Hospital and Research Centre,
Bara Chakia East Champaran,
Bihar, India

Cancer and its management in unani medicine-An appraisal

Dr. Khalid Egbal, Dr. Jawed Egbal, Dr. Tabassum Jahan, Dr. Md. Shamim Akhtar and Dr. Arvind Kumar

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Abstract

The word “cancer” is derived from the word “cancrum” which means crab. In the Unani System of medicine, cancer is described in the name of “Sartan” which is stand for cancer. According to Unani philosophy, it occurs due to the dominance of abnormal Sauda (black bile). Cancer is the world’s second-largest cause of death. Cancer is a generic term for a large group of diseases that can affect any part of the body. While significant progress has been made in the treatment and control of cancer progression, there are still significant defects and room for improvement. During chemotherapy, a number of unfavorable side effects might arise. Natural therapies, such as the Unani System of Medicine, which is based on three sources (i.e., plant, mineral, and animal). The use of plant-based formulations in cancer treatment has the potential for negligible side effects. A few plants (*Aftimoon*, *Kalonji*, *Sadabahar*, *Amla*, *Bisfayej*, *Bhui Amla*, *Habbul Neel*, *Kharbaq*, etc.) are used for the management of different types of cancer, along with different regimes (e.g., *Ishal*, *QAI*, *FASD*, *Hijama*, etc). The aim of this review is to explore the benefits of Unani drugs, on their scientific parameters to reduce the burden of cancer.

Keywords: cancer, sartan, abnormal sauda, unani medicine, herbal medicine.

Introduction

Unani System of Medicine is based on humoral theory ^[1]. Unani scholars attribute health to the functions or actions of the body in a normal way ^[2]. In Unani System of Medicine, humour (Akhlāt) plays a vital role in the maintenance of health; imbalance of their proportion either qualitative or quantitative can cause disease ^[3]. Unani Physicians defined Sartan (cancer) as a Saudavi warm (melanotic swelling), occurs due to the combustion of either Safra (yellow bile) or both Balgham (phlegm) and Safra (yellow bile) in the body ^[4]. The word “cancer” originated from ‘cancrum’ which is a Greek word for Crab and it is credited to the Greek physician Hippocrates (460-370 BC) ^[5]. Hippocrates used the terms carcinos and carcinoma to describe non-ulcer forming and ulcer-forming tumors. In Greek, these words, most likely applied to the disease because the finger-like spreading projections from cancer called to mind the shape of a crab ^[6]. The Roman physician, Celsus (28-50 BC), later translated the Greek term into cancer, the Latin word for crab. Galen (130-200 AD) Roman physician, used the word oncos (Greek for swelling) to describe tumors ^[7]. Although, the crab analogy of Hippocrates and Celsus is still in use to describe malignant tumors ^[8]. Cancer is a major public health problem in most developed countries; however, there have been notable improvements in the survival rate of patients over the past three decades owing to early detection and progress in medical treatment ^[9, 10]. Cancer is a leading cause of death worldwide, accounting for nearly 10 million deaths in 2020 ^[11]. The most common cancers (listed in descending order according to estimated new cases in 2020) are breast cancer, lung and bronchus cancer, prostate cancer, colon and rectum cancer, melanoma of the skin, bladder cancer, non-Hodgkin lymphoma, kidney and renal pelvis cancer, endometrial cancer, leukemia, pancreatic cancer, thyroid cancer, and liver cancer ^[12]. Around one-third of deaths from cancer are due to tobacco use, high body mass index, alcohol use, low fruit and vegetable intake, and lack of physical activity ^[13]. In low- and lower-middle-income nations, cancer-causing diseases such as hepatitis and the human papillomavirus (HPV) account for roughly 30% of cancer cases ^[14].

Late-stage manifestation and a lack of access to diagnosis and treatment are common in low- and middle-income countries. Comprehensive therapy is available in more than 90% of high-income countries, but less than 15% in low-income countries, according to reports.^[15] Cancer has a major and growing economic impact. In 2010, the overall yearly economic cost of cancer was estimated to be \$1.16 trillion dollars^[16].

Because each type of cancer necessitates a unique treatment plan, a correct cancer diagnosis is critical for appropriate and effective treatment. Radiation, chemotherapy, and/or surgery are commonly used in treatment^[13]. The first step in the treatment process is to rule out what your treatment goals are. In general, the primary goal is to cure cancer or significantly extend life^[12, 13, 14]. Another key goal is to improve the patient's quality of life. Support for the patient's physical, emotional, and spiritual well-being, as well as palliative care in the late stages of cancer, can help achieve this^[13, 14].

Medicinal herbs and phytocompounds derived from them are becoming more widely acknowledged as effective cancer treatments. When herbal medications are used in combination with conventional therapies, a vast number of clinical trials have indicated favourable benefits on cancer patient survival, immunological regulation, and quality of life (QOL)^[17].

Medicinal Plants and their anticancer activity

Aftimoon (*Cuscuta reflexa* Roxb.)

Cuscuta reflexa Roxb. (Family: Convolvulaceae) is commonly known as Aftimoon, Amarbel, Akashbel, or dodder in the alternative medicine system. It is widely used in the Unani system of medicine (USM) for its useful therapeutic effects due to its active constituents^[18]. One study carried out by Suresh V *et al.* reported that water extract of *Cuscuta reflexa* inhibits LPS induced inflammatory responses in RAW264.7 cells through an interplay of TNF- α , COX-2, and NF- κ B signalling. It induced apoptosis in Hep3B cells through the up-regulation of p53, BAX, and downregulation of Bcl-2 and surviving^[19]. One another study documented that, chloroform and ethanol extracts of *C. reflexa* exhibit significant antitumor activity in EAC-bearing mice that is comparable to that of the reference standard, 5- fluorouracil^[20].

Kalonji (*Nigella sativa* Linn.)

Nigella sativa (family: Ranunculaceae) seed has been an important nutritional flavoring agent and natural remedy for many ailments for centuries in ancient systems of medicine, e.g. Unani, Ayurveda, Chinese and Arabic Medicines, It is commonly known as Kalonji^[21]. Many active components have been isolated from *N. sativa*, including thymoquinone, thymohydroquinone, dithymoquinone, thymol, carvacrol, nigellimine-N-oxide, nigellidine, nigellidine and alpha-hederin^[22]. Both *in vitro* and *in vivo* studies have revealed that TQ exhibits potent antiproliferative and anticancer activities against various types of cancers, including blood, hepatic, kidney, respiratory tract, colon, and prostate cancers^[23]. Korak T (2020) reported that *N. sativa* might be used for its anti-cancer and antimetastatic properties and as an immune system activator against cancer^[24].

Sadabahar (*Vinca rosea* Linn.)

Catharanthus roseus (synonymous with *Vinca rosea*, family: Apocynaceae) is a perennial plant commonly seen in

tropical countries^[25]. There are four major vinca alkaloids in clinical use: Vinblastine (VBL), vinorelbine (VRL), vincristine, and vindesine (VDS), but only VCR, VBL and VRL are approved for use in the United States^[26]. The main mechanisms of *vinca alkaloid* cytotoxicity is due to their interactions with tubulin and disruption of microtubule function, particularly of microtubules comprising the mitotic spindle apparatus, directly causing metaphase arrest^[27, 28, 29, 30]. Moon SH *et al.* reported that the bioactive compounds, vincristine contents, and antioxidant power were noticed significantly higher in 60 min exposure at 5 cm distances and with the directly collected sample (T7). A similar trend has also been noticed from the anticancer activity. Demonstration of TIA accumulation was found higher at 5 min exposure, at 20 cm distances, and 48 h of incubation (T21) and the result of TIA contents had the highest correlation effects of anticancer activities^[31].

Bhui Amla (*Phyllanthus amarus* Linn.)

Bhui Amla is commonly known as “*bhumi amla*” which belongs to Euphorbiaceae family. In Unani literature it is described in the name of “BHUTI” which means Bhum Amlak (Amla of land). There are many chemical constituents reported in bhui amla, but major chemical constituents are mainly alkaloids, in the form of lignins, like phyllanthin and hypophyllanthin^[32]. Aqueous extract of *Phyllanthus amarus* (*P. amarus*) treatment exhibited potent anticarcinogenic activity against 20-methylcholanthrene (20-MC) induced sarcoma development and increased the survival of tumour harboring mice^[33]. Bhui Amla, has ability to induce apoptosis is an important marker for cytotoxic antitumor agents, and it can be used for the treatment of liver cancer^[34, 35].

Conclusion

According to WHO, 80 % of peoples depends upon Herbal Medicine? A literature survey based on published data, and classical text revealed that there is proof that plant compounds can have anticancer properties with low adverse effects. More research into plants and plant-derived compounds could lead to the development of effective anticancer drugs.

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