



Contents lists available at ScienceDirect

Journal of Traditional and Complementary Medicine

journal homepage: <http://www.elsevier.com/locate/jtcme>

Review article

Role of traditional Islamic and Arabic plants in cancer therapy

Rizwan Ahmad ^{a, *}, Niyaz Ahmad ^b, Atta Abbas Naqvi ^c, Adeeb Shehzad ^e, Mastour Safer Al-Ghamdi ^d^a Natural Products and Alternative Medicines, College of Clinical Pharmacy, University of Dammam, Dammam, Saudi Arabia^b Department of Pharmaceutics, College of Clinical Pharmacy, University of Dammam, Dammam, Saudi Arabia^c Department of Pharmacy Practice, College of Clinical Pharmacy, University of Dammam, Dammam, Saudi Arabia^d Department of Pharmacology, College of Clinical Pharmacy, University of Dammam, Dammam, Saudi Arabia^e Department of Biomedical Engineering and Sciences, School of Mechanical and Manufacturing Engineering, National University of Sciences and Technology, Islamabad, Pakistan

ARTICLE INFO

Article history:

Received 13 March 2016

Received in revised form

18 April 2016

Accepted 2 May 2016

Available online 21 May 2016

Keywords:

Cancer

Islamic and Arabic plants

TAI modalities

Ethno-pharmacological profile

Ethno-medicinal importance

ABSTRACT

Ethno pharmacological relevance: This review article underlines individual Traditional Islamic and Arabic plant (TAI) and their role in treating cancer. The aim of the study is to specifically evaluate the progress of herbs, Arabic and Islamic traditional herbs in particular, applied in cancer treatment, so far.

Materials and methods: Islamic and Arabic plants were selected and identified through different literature survey using “Google scholar”, “Web of science”, “Scopus” and “PubMed”. Each plant, from identified Arabic and Islamic plants list, was search individually for the most cited articles in the aforementioned databases using the keywords, “Anticancer”, “Uses in cancer treatment”, “Ethno pharmacological importance in cancer” etc.

Results: The current review about Islamic and Arabic plants illuminates the importance of Islamic and Arabic plants and their impact in treating cancer. There is a long list of Islamic and Arabic plants used in cancer as mentioned in review with enormous amount of literature. Each plant has been investigated for its anticancer potential. The literature survey as mentioned in table shows; these plants are widely utilized in cancer as a whole, a part thereof or in the form of isolated chemical constituent.

Conclusions: This review strongly supports the fact; Arabic and Islamic traditional plants have emerged as a good source of complementary and alternative medicine in treating cancer. Traditional Arab-Islamic herbal-based medicines might be promising for new cancer therapeutics with low toxicity and minimal side effects. The plants used are mostly in crude form and still needs advance research for the isolation of phytochemicals and establishing its cellular and molecular role in treating cancer.

Copyright © 2016, Center for Food and Biomolecules, National Taiwan University. Production and hosting by Elsevier Taiwan LLC. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

1. Introduction

The use of herbal medicine is leading modality, followed in Middle east, Europe, Israel and certain other advance countries, in order to treat cancer patients. According to latest WHO reports, even advanced countries have adapted traditional system of herbal treatment including; Belgium (31%), Australia (48%), France (49%), Canada (70%) and Germany (77%).¹ The 25% of the crude drugs used in last two decades are derived from plants, out of which only

5–15% have been investigated for bioactive compounds. Recent surveys reveal the use of such phytochemical for cancer treatment due to the fact; relatively low/nontoxic, antitumor property with minimal side effects, failure of the standard cancer therapy. A research finding on complementary and alternative medicines identified 143 articles from different Middle-Eastern countries. The report findings performed in Turkey, Israel and other advance countries showed, half of the patient diagnosed with cancer used CAM therapy even during chemotherapy.²

The history of cancer treatment reveals, the interest in cancer treatment goes back to the times of Islamic renaissance scholar.³ As suggested by the famous scholar “Avicenna”, “if it is the start of a cancer, it is possible to make it static and prevent it from growth and hence ulceration”. Sometime it happens, that the starting

* Corresponding author.

E-mail addresses: rareiyadh@uod.edu.sa, rizvistar_36@yahoo.com (R. Ahmad).

Peer review under responsibility of The Center for Food and Biomolecules, National Taiwan University.

cancer may be cured, but once it reaches to advance stages, verily it will not.⁴ In order to reduce resistance to the existing mechanisms, modern medical research shifted its focus towards finding of new anticancer agents as an alternate. The most promising alternate which took place are herbs and other natural plant products. The easy availability, low in cost along with possessing minimal side effects, makes the herbs as mainstream for treating and playing a vital role in the prevention and treatment of cancer.⁵ The wisdom of the past in the shape of folkloric and traditional uses served the better source for treatment of various human diseases including cancer. The most emerging role as observed for treatment or prevention in case of cancer was disclosed by Traditional Arab-Islamic (TAI) herbal-based medicines. The literature from ancient time as well as the use of Arabic and Islamic plants for cancer treatment by various Muslim and religious scholars, in contrast with standard use of these herbs in cancer now-a-days by different physicians and practitioners, is a self-comprehensible prove revealing the role of TAI herbs in cancer. The TAI herbs are promising for new cancer therapeutics due to low toxicity and minimal side effects also.^{6–8}

Despite of advancement in treating diseases, the hallmark to cure cancer completely is not accomplished till to date. Although, endless efforts of researcher to eradicate cancer led to different molecular and cellular understanding i.e. signal transduction involved in angiogenesis, protein expression and apoptosis, the morbidity of this disease is so far rising. Research statistics showed that 20% of death in the world results from cancer, affecting more than one third of the world population.⁹ Several treatment are available i.e. drugs from synthetic or semisynthetic origin, radiation therapy, chemotherapy etc. but these approaches are least effective and accompanied by severe side effects in most of the cases. The major effective alternate is herbal treatment, with less side effects and potentially safer in cancer. The CAM study conducted (2007) in the U.S. population reports; almost 4 out of 10 adults had used some form of CAM within the past year.¹⁰ The American spent 33.0 billion U.S dollar (USD), accounting for 11.2% of total out-of-pocket health care expenditure, on Traditional products.² Even in the more developed countries the use of CAM and traditional medicine is comparably extensive.¹¹ According to WHO latest fact sheet; in India 70% of the population, in Ethiopia more than 90% of the population depends on traditional medicine for primary health care.¹² Proportionally, more than 70% population in Chile and 40% population in Colombia adopted the traditional medicine for their healthcare system.¹³ The China (40%), too is in the list of countries using traditional medicine.¹⁴ The advanced countries i.e. Belgium (31%), Australia (48%), France (49%), Canada (70%) and Germany (77%) showed a comparable data for the use of different CAM and traditional treatment modalities.

The importance of the traditional herbal medicine can be assumed from the fact that, the number of member state regulating the herbal medicine increased from 65 (1999) to 119 (2012) along with the upgradation of the research institute for herbal medicine from 19 (1999) to 73 (2012), respectively.¹

The demand of traditional medicines and practitioners is raising on regular basis. The fact can be supported by the enormous data available i.e. an increase of 30% (1995–2005), when 750,000 visits were recorded in a two week period in Australia¹⁵; 907 million visits (2009) for the Traditional Chinese medicines, accounting for 18% of all medical visits¹⁶; a total of 18226 traditional health care services for 80% of population in Lao People's Democratic Republic¹⁷ and the 560 U.S dollar/annum out-of-pocket expenditure for traditional medicines in Saudi Arabia.¹⁸ Likewise, hundreds of literature data is available, which just shows the importance and utilization of herbal and traditional medicine for the treatment of diseases including cancer.

The study plans; to evaluate the claims i.e. TAI plants have folkloric uses in treatment of cancer. The main focus is on TAI alternative medicinal plants for establishing their role in prevention, treatment or procurement of cancer. This review is an eye-bird view on the ancient TAI plants used in cancer treatment along with herbal treatment research.

1.1. Cancer

Cancer, more appropriately described as, an uncontrolled growth or cell proliferation which invades other tissues as well. The mechanism behind tissue invading is through direct cell migration or blood and lymphatic system. The risk factors for cancer consist of chemicals, radiations, unhealthy diet, environmental factors, infection and tobacco smoke.¹⁹

There are hundred different types of cancer usually named by the tissue or organ or type of cell in which they begins. There severity can be benign (usually earlier stage) or malignant (end stage, mostly called cancer).²⁰ Cancer identified in earlier stages are cured most likely, as mentioned in their first time treatments of cancer, by Avicenna, Abulcasis and Rhazes in the earlier Islamic and Arabic era.^{3,21}

1.2. Importance of plants

The advancement in drug discovery technology, diversification of the health sector and reduced funding for natural product-based drug discovery, couldn't kneel the herbs and herbal treatment systems. The natural products from plants and biological sources still remain an unlimited and uncondensed source of new phytochemicals and nutraceuticals. The World Health Organization²² estimates; about 80% of the world population presently uses herbal-based medicines for some aspect of primary health care. The fact sheet also mentions the fact; herbal medicines are the most lucrative form of traditional medicine, generating billions of dollars in revenue.²² The era of 1984–2003, witnessed numerous natural product-derived small molecules patent, despite of decrease in the industrial funding for natural product-based drug discovery, at the same time. A comprehensive review of human drugs introduced since 1981 suggests that, out of 847 small molecule-based drugs, 43 were natural products, 232 were derived from natural products (usually semi synthetically), and 572 were synthetic molecules. However, 262 of the 572 synthetic molecules had a natural product inspired pharmacophore or could be considered natural product analogs. Natural products continue to make the most dramatic impact in the area of cancer. From 155 anticancer drugs developed since the 1940s, only 27% could not be traced to natural products, with 47% being either a natural product or a direct derivation thereof. According to recent surveys, there are about 450 medicinal plants in the Eastern region of the Mediterranean and about 230 medicinal plants in the coastal Mediterranean region in Egypt. These plants are used by healers for the treatment and prevention of almost all types of human disease, such as cancer; skin, respiratory, digestive, and liver diseases; diabetes and others.²³

1.3. Importance of Islamic and Arabic plants

Advanced tumors are treated usually by chemotherapy and although these drugs are effective, they are associated with severe adverse events and drug resistance.^{24,25} Traditional Arab-Islamic herbal-based medicines might be promising candidates for new cancer therapeutics with low toxicity and minimal side effects.^{5,6,8}

The origins of Arab-Islamic medicine can be traced back to the time of the Prophet Mohammad, Peace Be upon Him (PBUH) as a significant number of Hadiths concerning medicine are attributed

Download English Version:

<https://daneshyari.com/en/article/5635364>

Download Persian Version:

<https://daneshyari.com/article/5635364>

[Daneshyari.com](https://daneshyari.com)