İNSAN GIDALARINDA DOĞAL ANTİOKSİDANLARIN FAYDASI

INTEREST OF NATURAL ANTIOXIDANTS IN HUMAN FOOD

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Özet

"Antioksidanlar" terimi altında, gıdalarımızda veya belirli bitkilerde doğal olarak bulunan ve vücut hücrelerini serbest radikallerin etkisinden korumaya yardımcı olma gibi ortak etkiye sahip olan belirli vitaminleri, eser elementleri, belirli mikro besinleri gruplandırıyoruz. . Serbest radikaller, vücudumuzun normal işleyişi sırasında hücrelerimizde doğal olarak üretilen moleküllerdir ancak bu üretim kirlilik, tütün veya güneşten gelen UV ışınları gibi dış etkenlerin etkisiyle artar. Aşırı serbest radikaller, hücrelerin erken yaşlanmasına ve bazı hastalıkların gelişmesine yol açabilir.

Kansere karşı tedavi edici veya önleyici amaçlarla kullanılan antioksidanlarca zengin bitki ve besinlere ilişkin bilgileri belirlemek; Doğu Cezayir'deki iki willayada 39 bitki uzmanı ile Şubat-Nisan döneminde etnobotanik bir araştırma yapıldı. Araştırmamızın aracı, cevapları hazırlanmış ve etnobotanik indeksleri hesaplanmış soru listesi içeren bir formdur.

Sonuçlar Ephedra, Moringa, Zerdeçal, Costus ve Nigella'nın oldukça önemli bir Sadakat İndeksine sahip olduğunu ve kanser tedavisinde kullanıldığını göstermektedir.

Verilerin işlenmesi ayrıca acılığa karşı savaşmak için kullanılan birkaç bitkinin envanterini çıkarmamıza da izin verdi, kırmızı biber ve karabiber popülerlik indeksi (RPL) 0,76 gibi yüksek bir puan aldı ve bu nedenle daha çok kullanılan iki ürün.

Anahtar Kelimeler: antioksidanlar, kanser, etnobotanik indeksler, gıda, bitkiler

Summary

We group under the term "antioxidants" certain vitamins, trace elements, certain micronutrients present naturally in our food or in certain plants and which have the common effect of helping to protect the cells of the body from the effect of free radicals. . Free radicals are molecules produced naturally in our cells during the normal functioning of the body, but this production is increased under the effect of external factors such as pollution, tobacco or UV rays from the sun. An excess of free radicals can lead to premature aging of cells and the development of certain diseases.

To identify information on plants and foods rich in antioxidants used for curative or preventive purposes against cancer; an ethnobotanical survey was conducted during the period from February to April with 39 herbalists across two willayas in eastern Algeria. The tool of our investigation is a form with a list of questions with prepared answers and ethnobotanical indexes have been calculated.

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The results show that Ephedra, Moringa, Turmeric, Costus and Nigella have a highly significant Fidelity Index and are used for the treatment of cancers.

The processing of the data also allowed us to inventory several plants used to fight against rancidity the popularity index (RPL) of red pepper and black pepper obtained the high score of 0.76 and are therefore the two products more used.

Keywords: antioxidants, cancer, ethnobotanical index, food, plants

1. INTRODUCTION

In recent years, there has been an increase in knowledge of nutritional science, in fact several studies have been carried out to identify the specific compounds contained in our foods and which can be the source of beneficial or even preventive effects for our health against certain diseases (Floegel and *al* 2011, Fadili and *al* 2017)

The secondary metabolites of plants are often incriminated such as antioxidants the development of various degenerative pathologies associated with oxidative stress.

These antioxidants are rich in polyphenols (Bento and *al* 2020), these contain several thousand molecules, whose natural properties are of interest to the food and pharmaceutical industries. Indeed, these molecules exert a major effect on the organoleptic characteristics of the products. In addition, due to their antiseptic, antibacterial and antifungal properties (Del Bo and *al* 2019 ,El ouali and *al* 2013) , they can have an impact on the preservation of products, in particular cosmetics, food or pharmaceuticals, the state of preservation of which must be as perfect as possible throughout their shelf life cycle.(Di lorenzo and *al* 2021).

2 .MATERIEL ET METHODES

The aim of our work is to collect information on plants and foods rich in antioxidants used for curative or preventive purposes against certain pathologies, in particular the treatment of cancer.

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The ethnobotanical survey is a work that consists in going to meet traditional practitioners to inquire about their methods of treating diseases.

The ethnobotanical survey serves as a link between the two medicines, both traditional and conventional.

An ethnobotanical survey was conducted for 2 months in two regions of eastern Algeria, among people who use medicinal plants (villagers, herbalists, sellers, and specialists in herbal medicine); these are indeed experienced people in the practice of herbal medicine or the sale of medicinal plants and which are likely to provide correct and original information on their uses.

 The number of respondents is 39, and the age range varies between 20 and 64 years. The only criterion for retaining an informant is his experience in the field, which must not be less than 6 years.

The tool of our survey is a form with a list of questions with prepared answers, to guide the semi-direct interview; the standard procedures of the ethnobotanical survey have been respected.
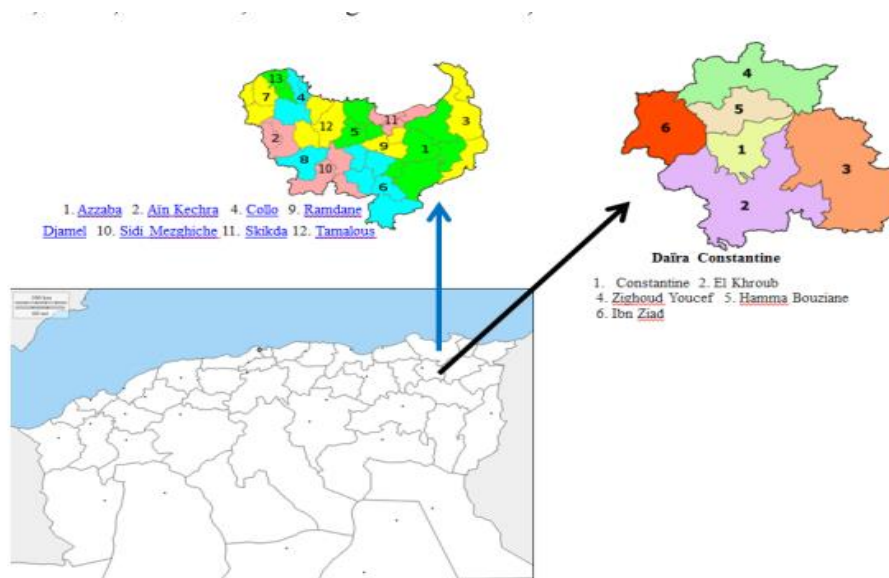
Figure I: The municipalities concerned by the ethnobotanical survey

3. DATA PROCESSING

The data recorded on the survey sheets were processed and entered into Microsoft Office Excel® 2007 software. Data analysis used simple methods of descriptive statistics. Thus, quantitative variables are described using the mean. Qualitative variables are described using counts and percentages. For this we used two ethnobotanical indices Relative Popularity Level (RPL) and Fidelity Index (Fidelity.

The Relative Popularity Level (RPL) is an index which makes it possible to classify the plants used according to their level of relative popularity thanks to the following formula

RPL= Iu/ n

IU: is the number of informants who mention a given plant as medicinal

n: is the total number of informants.

The Fidelity Level (FL) This index helps to appreciate the intensity of the relationship that herbalists establish between a medicinal plant and its role in a given category of diseases. This index is calculated according to the formula proposed by Friedman et al. (1986).

IF= IP/ Iu x 100

Ip: is the number of informants who affirmed the use of the plant to treat a given pathology

Iu: is the total number of informants who recognize the medicinal nature of the plant (regardless of the pathology treated).

4. RESULTS AND DISCUSSION

The data processing allowed us to inventory several plants used to fight against rancidity we calculated the popularity index (RPL) for each quote.

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Table I: Calculates Relative Popularity Index

products or plants mentioned	drawing	relative level of popularity
Red pepper		0,76
Black pepper		0,76
Laurel		0,35
Ginger		0,15
Clove		0,15
Salt		0,12
Turmeric		0,12
dry lemon		0,10

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Apple vinegar		0,07
Arabic gum		0,07
Rosemary		0,07
Olive oil		0,05

This index makes it possible to classify the plants used according to their level of popularity; the score of this index varies from 0 to 1 and makes it possible to appreciate the local importance of each species. It shows that red pepper and black pepper, which obtained the high score of 0.76, are the two most cited products and therefore the most used. The majority of herbalists or 92% know the plants that are used to preserve food against deterioration, rancidity and discoloration.
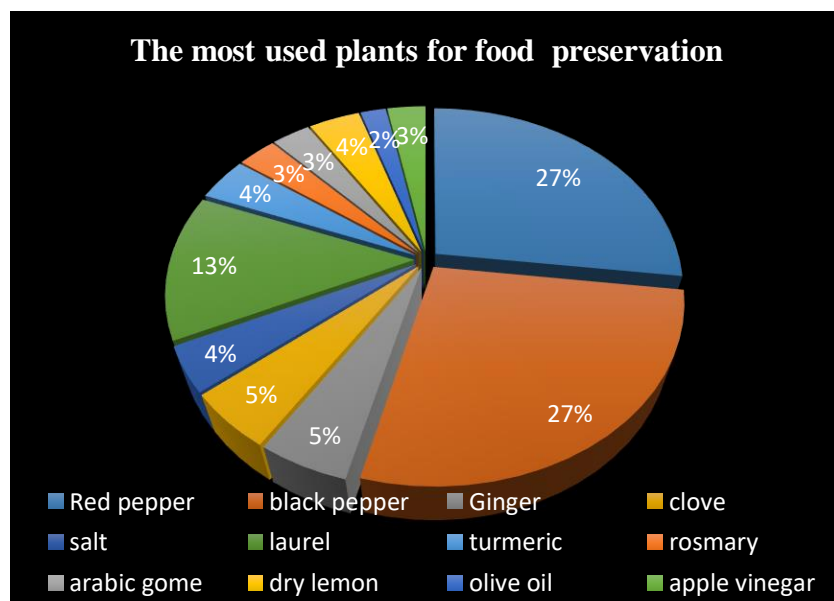
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Figure 2: The most used plants for food preservation

We calculated the fidelity index of the main plants cited to treat cancer mentioned in Table 2 The fidelity index (FI) helps to appreciate the intensity of the relationship that herbalists establish between a medicinal plant and its role in a data category of diseases namely the

treatment of cancer for our study. This index makes it possible to measure the degree of relative use of each of the plants concerned.
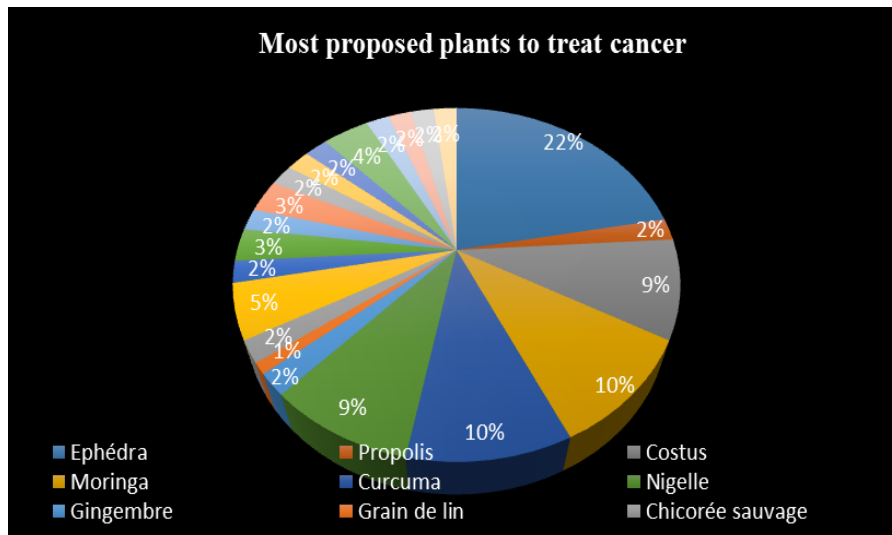

Figure 3: The most proposed plants to treat cancer

Table 2: Calculates the fidelity index (IF)

Main plants mentioned	Drawing	Fidelity index IF= IP / Iu x 100
Ephedra		100%
moringa		86%
Turmeric		86%
Costus		80%

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Nigella		80%
Aquilaria malaccensis		46%
Graviola		26%

The results show that Ephedra, Moringa, Tturmeric, Costus and Nigella have a highly significant fidelity index and are used for the treatment of cancers.

Some herbalists, especially specialists in phytotherapy, offer plant-based preparations against cancer, the preparatory mode and the choice of plants and especially the dosage is based on the analyzes of the patients; it should be noted that at the stage of chemotherapy he prefers does not give anything to the patient as a safety measure and to avoid any interactions with drugs.

5. CONCLUSION

Phytotherapy is an ancestral and millennial science, it is currently requested by the population. This ethnobotanical study carried out showed that since ancient generations, the traditional use of medicinal plants rich in antioxidants still persists, despite the revolution in medical technology.

Antioxidants, by combining with free radicals, stop the chain reactions, which protects the body's cells from damage caused by the disruption of oxidation-reduction reactions. Plants (fruit and vegetable medicinal plants) produce a wide variety of secondary metabolites which have significant antioxidant effects such as: polyphenols and flavonoids, vitamins (tocopherols, ascorbic acid, etc.), trace elements (selenium and zinc), these compounds would contribute to antioxidant activities. Numerous epidemiological studies have revealed the beneficial effects of nutritional intake of antioxidants in the prevention of diseases.

 The multiplication of these ethnobotanical studies on a national scale will make it possible to better understand the potentialities in this field.

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