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DETECTION OF PESTICIDES RESIDUES CHLORPYRIFOS IN SOME MEDICINAL PLANTS

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Abstarct
Pesticide deposits were measured in few of the genrally used, restorative plants gathered from various business sectors namely: green tea, red tea, sfof, senmaki, cinnamon, nutmeg, chewing mixture and slimming mixture where it was found that malathion, pyrimifos-methyl, and profenofos were predominant in most of them during the measurement. In these samples, the presence of fungicides was detected only in cumin samples, where it was dominated by samples of cumin, anise, tea, sage, especially organophosphate pesticides (chlorpyrifos, profenofos, pyrimifos, methyl and ethion), and ginger parts were with ought pesticides, while cinnamon samples showed only chlorpyrifos <LOQ, anise diphenoconazole was at <LOQ only in chewing and slimming mixtures, and was a fungicide (Aromadendrene and thiophanate methyl) are prevalent in green tea, sfof and nutmeg. Therapeutic plants and regular spices should be utilized after security and wellbeing testing It is suggested that every nation utilizes restorative plants and flavors (gathered from normal or developed environments) in somewhere around one observing research facility and identifying pesticide residues and granting a safety authorization for their safe use.

Keywords :Pesticide Residues, Toxic Compounds, Medicinal Plants

Introductio

Medicinal spices have been commonly known since antiquated times. It has a few purposes, some of which are for cooking or as unrefined components for drug items, beauty care products, and home grown restorative items. They, at the end of the day, might be presented to contaminations from the climate in which they were developed, like pesticide deposits and polycyclic sweet-smelling hydrocarbons (PAHs) (1).Thus levels of aromatic hydrocarbons may be high as these compounds are considered carcinogenic, according to the reports of the Scientific Committee on Food, and anthracene benzo [A] and pyrene dibenzo have been reported to be more dangerous. In addition, inappropriate use of plant protection products may lead to their accumulation in plants Herbal and thus human health problems. Pesticides are associated with a wide range of risks, ranging from short-term effects such as headaches and nausea, chronic effects to cancer, reproductive harm, and endocrine disruptions. (2). Herbal products include a variety of preparations of plant origin that can be broadly categorized as foodstuffs, nutritional supplements, cosmetics and herbal medicinal products. The classification of herbal products may not be within the European Union (EU) or global level but are classified under national competencies as well as

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Classification of pharmacies Herbal products are widely available through retail markets such as local markets (3) and the use of medicinal plants may be considered an ancient method of overcoming disease. Therefore, medicinal plants have been integrated into all systems of traditional medicine. Medicinal plants are often the main source of health care and treatment for common ailments in low- and middle-income countries. Recently, the demand for herbal products has increased in developed countries, partly due to the assumptions made around the word " Natural" which means "harmless" and although their popularity is expanding in the global market, the safety of herbal products has become a major public health concern (4) and wholesale and retail stores can lead to more confusion and chaos (including sales via The Internet) has led to negative reactions as these herbal products are of poor quality sometimes. The most common causes are adulteration of herbal products with undeclared effective pharmaceutical preparations, incorrect substitution, use of poisonous plants or incorrect doses, interactions with conventional medicines, and use of products contaminated with various substances that are dangerous such as bacterial contamination or contamination with mycotoxins and minerals. Radioactive, heavy and agricultural chemical residues (5) Many pollutants may occur naturally in the land and air, for example, radionuclides and minerals, where pollution is transmitted to medicinal plants through this polluted soil, as well as pollution by factory emissions or persistent chemical residues or as a result of excessive use of them. (6) Harmful contaminants can also arise from the conditions in which medicinal plants are grown or as a result of treatments for herbal materials such as fumigation (7). Medicinal plants have a long history throughout the world and are still an important part of traditional medicine today (8). When we talk about the quality of medicinal plants we have their safety and efficacy in mind as many lists outlining the high quality requirements for medicinal plants and related products are shared on the global market and in the pharmacopoeia while legal frameworks exist at the national or regional level. (9) (10) There are many benefits for medicinal plants as they have a stress-lowering effect, antioxidants, essential oils, vitamins, phytosterols and many other phytonutrients that in turn help the immune system to fully defend the body against viruses, toxins, bacteria, and other germs (11) (12).

Besides biological pollutants, weeds may be contaminated with toxic chemicals such as mycotoxins, heavy metals, pesticides, pesticide residues and other crops, weed plants are attacked by insects and diseases in the field and during storage also, thus pesticides are widely used to protect them. Concern is focused on pesticide contamination due to its high toxicity and environmental stability. Although the use of organochlorine pesticides (OCPs) has been restricted or prohibited by legislation that has been used for many years, these compounds are still being discovered (13) as pesticide contaminants may be related to the origin of these herbaceous plants as when grown in polluted environment.

. For instance, the development of restorative plants in soils in which restricted pesticides, for example, DDT have been stored. T (14) and for a long time during planting and post-reap periods Restorative

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plants can be shielded from harm or contamination through the controlled utilization of plant insurance items (pesticides and herbicides) (15), and this is the essential wellspring of pesticide deposits. The subsequent source is the uncontrolled utilization of biopesticides against mosquitoes in huge areas of timberland. There are numerous pollutants and buildups that might be unsafe to home grown medication purchasers (16). Restorative plants and home grown items should be ok for patients and purchasers too. It is important to lay out a proper strategy for quality control to guarantee the security of home grown items and subsequently the wellbeing of their shoppers and to forestall and assess pesticide deposits. To guarantee security and consistence with quality guidelines, restorative spices and natural items should be remembered for the fitting administrative system and spices are named food varieties of plant beginning according to Guideline (EC) 396/2005(17).A therapeutic plant is characterized as any plant part. A spice can be a leaf, plant, stem, seed, root or natural product. , Or the bark or some other piece of the plant that contains at least one synthetic substances with little or enormous fixation and can treat at least one explicit sicknesses or decrease the side effects of disease assuming we depend on this plant part, either in its normal structure or through the dynamic synthetic substances extricated From this specialist Dragendroff made sense of in his meaning of the restorative plant that all that of plant beginning is utilized restoratively, as it is a therapeutic plant (18) (19). To guarantee customer security, experts in Europe have drawn Greatest Buildup Lines (MRLs) for specific weed pesticides (20) because of the far reaching utilization of plant assurance items to safeguard weeds during development thus buildup control has become fundamental.. In situations where spices are utilized as therapeutic medications. in this research a study was conducted on a group of medicinal plants and mixtures most commonly used in the herbariums of Baghdad governorate. Among them is the senna plant, one of the plants used in herbal medicine that belongs to the leguminosae family, the Latin name for this plant is Cassia angustifolia, which is considered an important laxative because it irritates the intestinal wall without affecting the verminous movement of the intestine and there are dried leaves in Attarin, the red tea plant called (Gujarat tea The scientific name of this plant is Roselle, and the Latin Hibiscus sabdariffa, and it belongs to the marshmallow family Malvaceae. Green Camellia Sinensis It is called Green Tea and it belongs to the Theacea family (25). Green tea can help in burning fats in the body, and it regulates blood sugar and insulin levels. Through the skin into the body, and some believe that the tea solution can be used as a bath that is sprinkled over the skin to soothe sunburn or soothe mosquito bites and insects. The tea can raise blood pressure due to Caffeine. it contains the compounds (Polyphenole Epigallocatechin Gallate Bioflavonoide, EGCG) and contains tannin, an aromatic oil, and theophylline B. Drinking large quantities of it causes nervous tension and insomnia, and it is useful in preventing various types of heart and blood vessel diseases and even heart diseases. Al-Attarin at the present time by mixing more than one plant to increase the effectiveness of the treatment within certain mixtures to treat a specific disease, such as the chew mixture that treats stomach cramps in children and is sold by perfumers and the plants that make up this mixture are (black seed, bitter melon, myrrh) and the English name of Nigella nigella. Latin Nigella sativa L and goes back to the family Ranunculaceae, where Nigella sativa oil is used against coughing, coughing, chest diseases, and the oil is an intestinal analgesic, a repellent of gases, a menstrual cycle and saliva,

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and works on the generation of bile and in folk medicine, nigella sativa is used as a treatment for gallbladder and liver. With the Latin name Citullus colocynthis Schrad and the English name Colocynth, melon is a powerful laxative and severe diuretic (27), (28).the treatment mixture for diabetics consists of 10 plants, which are cumin, mint, star anise, thyme, bitter gum, nigella, cardamom, lamis, borage, thyme, and Cassia. Peppermint and the Latin name for it Mentha piperita L, which belongs to the labiatae family, where this plant is considered one of the most successful medicines for treating biliary and intestinal disorders and expelling gases. Which belongs to the Umberlliferae family, where it is used in making toothpastes and helps digestion, expel gases and remove swelling, as anise is included in the composition of many cough medicines and tablets that are used to relieve throat pain and tonsillitis and anise is useful in treating cold attacks as it removes headaches, menstruation and strengthens labor During childbirth and facilitates and increases Milk production in nursing mothers, and the thyme plant, Thym, its Latin name, Thymus capitatus, belongs to the labiatase family, and is used as a treatment for ring infections. This plant has an anti-hookworm effect and is also used to treat bacterial diseases in the stomach and intestine and treats skin diseases such as eczema (29), (30).the danger of herbal mixtures lies in several things, including the source of these herbs, as the area of their cultivation may be contaminated with toxic minerals such as lead, arsenic, cadmium and mercury, or the water used for irrigation is contaminated with toxic metals or that these herbs have been stored in incorrect ways, where the storage areas are With high humidity or temperature, which allows the multiplication of bacteria, fungi and yeasts, which spoils medicinal plants and eliminates the benefit from them or be a source of various diseases, especially children, pregnant women or the elderly, as some herbs cause food poisoning such as colic or diarrhea, intestinal and stomach cramps when contaminating liquid herbal mixtures With pathological bacteria, especially when prepared by primitive home methods. Adulterated mixtures must be wary of their danger when mixing chemical or pharmaceutical compounds with them in unknown proportions. These percentages may be high doses and continuing to harm the various organs of the body and blood circulation (31), (32), (33)

The aim of this study

-Detection of the pesticide residues accumulated in the tissues of some medicinal plants used in herbal medicine, which are used in some local mixtures available in the market and sold by perfumers for therapeutic purposes

-Investigate toxic compounds resulting from poor preservation and storage

The Method of Work

The plant samples and samples were brought randomly from some local herbariums and the herbal center of the Ministry of Health in Baghdad and sent to the laboratory for analysis in the laboratory.

-Removing, drying, and grinding the unwanted impurities and materials from the sample

-After preparing the sample, 15 grams of it are taken for the purpose of extraction

-The extraction is done using a Soxhlet device, where the weight taken is placed in the specific extract, with the addition of 100 ml of a suitable solvent (methanol) in the volumetric flask of the Soxhlet gas (34), (35.(

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-After configuring and operating the device, the extraction process takes place for a period of 3 hours, as the solvent is passed over the sample for a period of 7 cycles

-The extract is taken which is a solvent in addition to organic materials, pesticides, and others

The extract is placed in a (Rotary) separator to separate organic materials, oils and pesticides at a temperature of 70-60 degrees

-Quantitative transport is done, and a suitable solvent is added, after which it is injected with a GC-MASS device on the pesticide reagent (36), (37).

Results and Discussion

The aftereffects of pesticide buildups in eight regularly utilized restorative plants were examined, namely green tea, red tea, cinnamon, nutmeg, soybean, slime mixture and the chewing mixture used for infant colic. It was found that the ginger sample was free of pesticide residues, followed by the cinnamon samples in which chloropyrifos appeared at a lower LOQ level, while the cumin samples showed higher levels of pesticides compared to the other plant samples examined. On the other hand, anise contains difenoconazole, which was at a level of less than <LOQ. The fungicides detected in cumin samples were in the form of compounds (the antifungal Aromadendrene and thiophanate-methyl) used as a plant protective product against fungal diseases. Organic (malathion, chlorophenoside, Chlorpyrifos, ethion). medicinal plants have been considered because they favorably treat many diseases and their active ingredients included in many of the pharmaceutical compounds that are safer compared to a synthetic chemical drug may not have any side effects (38), (39), (40), (41), (42), (43) On the other hand, oils may play a vital role in the solubility of many pesticides such as cumin seeds. With ginger having a high moisture content, as many pesticides are soluble in oil compared to water, there are significant differences from country to country in the quality control of pesticide levels and in these commodities. also. The amount of synthetic chemicals in pesticides used annually has increased worldwide, which leads to significant risks to human health. Malnutrition and infectious diseases. (44) (45), (46). Many of the pesticides in common use today are human carcinogens. Other studies have revealed the relationship between pesticide use and sarcoma, multiple myeloma, cancer of the prostate, pancreas, lungs, ovaries, breasts, testicles, liver, kidneys, intestines, as well as brain tumors. Furthermore, pesticides can harm the human nervous system (47), (48), (49).

Conclusions and Recommendations

- restorative plants and normal spices ought to be subsequent to leading well-being tests The use of.
- Each nation delivering therapeutic plants and flavors (gathered from nature or developed) ought to have somewhere around one control research facility prepared to do identifying pesticide residues and granting a safety authorization for their safe use.
- It is also recommended to grow medicinal plants without any chemical treatments and store them in good conditions without treatment with pesticides.

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