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About innovative Environmental Research

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Pesticides are Double-Edged Sword

The Sultanate celebrates the Omani Environment Day

The Sultanate of Oman, represented by the Ministry of Environment and Climate Affairs, celebrated the Omani Environment Day which falls on the eighth of January each year under the slogan: "A Cooperating Society for a Sustainable Environment". The event took place in Al-Muhallab Bin Abi Safra Hall at the College of Applied Sciences in Ibri, under the patronage of His Excellency Sheikh Saif bin Humair All Malik Al-Shihhi, Governor of Aldhahrah. The Sultanate's role in preserving the environment has made its reputation on the Arab, regional and international levels thanks the great efforts made by the concerned authorities in the Sultanate in such fields. Coordination is carried out between the Sultanate through the Omani National Committee for Education, Science and Culture and the Sultanate's permanent delegation to UNESCO to publicize this great role the Sultanate plays in the field of environment and its protection and preservation in cooperation with the « The Man and the Biosphere Program» known as the UNESCO «MAB".

Concurrently with the Celebrations of (Omani Environment Day) ..

Launch of a National Initiative for Planting 10 Million Wild trees

The Ministry of Environment and Climate Affairs, in cooperation with Petroleum Development Oman (PDO), launched an initiative to plant 10 million Omani wild trees, under the patronage of His Excellency Mohammed bin Salem Al Tobi, Minister of Environment and Climate Affairs, in the presence of His Excellency Ahmed bin Nasser Al Mahrazi, Minister of Tourism, His Excellency Dr. Hamad bin Said Al-Awfi, Minister of Agriculture and Fisheries, and a number of Undersecretaries at officials of the governmental and private concerned entities which are interested in the environmental affairs in the Sultanate. The launch of the initiative coincides with the Sultanate's celebrations of the Omani Environment Day, which falls on the 8th of January each year. The initiative comes under the slogan «A Cooperating Society for a Sustainable Environment», to emphasize the importance of the preservation of wild plants, increasing the green area and combating desertification. The Ministry seeks to reinforce planting wiled trees in cooperation with the concerned governmental and private authorities. The initiative aims to increase and improve the vegetation cover in the pastoral and degraded natural areas, increase carbon stocks, raise awareness for the importance and benefits of increasing the green area for the environment and society, as well as the importance of the contribution of all segments of society in preserving the natural environment, and the possibility of economic benefits of some wild trees species.

Duqm Embodies the Preservation of the Omani Environment by Planting 1,000 Trees

The Special Economic Zone Authority of Duqm, in cooperation with 14 companies operating in the region, have planted more than 1000 trees in two locations in the Special Economic Zone of Duqm as part of their celebration with the Omani Environment Day which falls on the 8th of January each year. The 2020 celebration was held under this year the slogan which is: «A Cooperating Society for a Sustainable Environment". The Special Economic Zone Authority of Duqm witnessed a number of activities accompanying celebrating the Omani Environment Day. On the 6th of January, the school students, kindergarten children, with the participation of the Omani Women's Association in the Wilayat as well as a group of citizens, planted approximately 431 trees in Duqm Public Park. Shirts with the slogan of Environment Day were distributed, as well as agricultural tools. This event aimed at rooting and preserving concepts related to the environment and increasing students› awareness, encouraging and urging the young ones to practice environmental activities.

point of view

10 Million Trees

Dr. Dawood Sulaiman Al Balushy
Editor-in-Chief

The National Environmental Initiative launched by the Ministry of Environment and Climate Affairs, together with Petroleum Development Oman (PDO) on the occasion of the Omani Environment Day, to plant 10 million wild trees from the local Omani plants in the various Wilayat of the Sultanate within 10 years, is a very distinct initiative aimed at preserving the vegetation in the Sultanate and Biodiversity. It is also evidence of the existence of clearly defined future plans to preserve the Omani environment system. This initiative will undoubtedly, be a unique environmental asset on the level of the Arab region.

10 million trees is a number that causes joy and happiness and confirms that there are clear efforts by the public and private sectors to preserve the Sultanate's environment and work to create a society which is conscious and aware of the importance of the environment in daily life. This initiative will also contribute to the preserving the local endangered and degraded environmental trees, creating a green patch, combating desertification that afflicts many of the Sultanate's Wilayat, in addition to combating global warming, creating a natural tourist outlet, and absorbing the carbon dioxide (CO2) and harmful gases, plus the development of biodiversity and spreading environmental awareness among various groups of the society on the importance of preserving the environment and the natural resources.

The beautiful thing about this matter is that this initiative will involve the various governmental and private sectors, civil society institutions, individuals, clubs, Omani women societies, volunteer work teams, universities, colleges, and scientific research centres in the planning and implementation process according to studied scientific strategies. This initiative has come parallel to the vision of Oman 2040, which focused in one of its important axes, on preserving the biodiversity in the Sultanate, with the aim on balancing economic and environmental development with a view to sustainable development.

We hope that this national initiative may achieve success in all its goals, visions and strategies. We also hope that the private sector will follow the example of the Petroleum Development Oman (PDO) in adopting such national environmental initiatives. We also hope that interaction will be carried out by the local community and individuals in implementing this initiative. . Finally, we say thank you for all the efforts made and seeking to preserve the Omani environment system.

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Interviewed by: Rashid Al Balushi

The Sultanate is considered as one of the countries that have taken the lead in the safety, sustainability and conservation of environmental resources, as it played a major role in the field of environmental safety through signing international agreements such as the Basel International Convention, Rotterdam Convention and Stockholm Convention for the management of hazardous and chemical waste. The Sultanate has also joined the conventions related to climate change, the ozone layer, the environmental safety and the protection of the marine environment. The Sultanate is seeking exchange of international experts to qualify cadres that can follow up the implementation of laws, legislations and concluded agreements.

Dr. Jamal Al Sabahi:

■ Nanotechnology is used to clean water and air from toxic organic pollutants

■ This technology will treat the environmental problems in a more sustainable way with less harmful waste

■ Nanotechnology plays an important role in various applications in our lives ranging from food and medicine, to electronics

In his special speech for the Lynx newsletter, Dr. Jamal bin Nasser Al-Sabahi - the official at the Central Equipment Laboratory at the Collage of Agricultural and Marine Sciences at Sultan Qaboos University, said that the the world countries and environmental organizations are concerned with aspects related to environmental protection in different environments such as seas and rivers, agricultural and industrial activities and air quality, where he focused on the importance of using nanotechnology to address environmental problems and issues, which is part of the fourth technological revolution in technology.

Scientific Cooperation

"There is close cooperation between the university and governmental and private institutions interested in the environment sector and its safety through research works, as well as providing advice and scientific exchange of information related to the environment, its protection and adaptation of local resources for a safe environment without compromising its diverse resources" Dr. Al-Sabahi said about the cooperation between the university and the competent authorities in the field of preserving the environment in the Sultanate .

About the most important research carried out by Sultan Qaboos University in the field of environmental preservation, Dr. Jamal Al-Sabahi mentioned that Sultan Qaboos University contributes to many scientific research related to the environment, its safety and the preservation of its vital resources and projects related to environmentally friendly renewable energy sources. This is achieved through the empowerment of research work on the use of microorganisms existed in their original environment to work on treating organic pollutants resulting from the presence of remnants of oil compounds in the soil, which are called bio-cleaning. This was done through the work in a project funded by the Scientific Research Council. Also, nanotechnology is used through the using of optical catalysts that are exposed to solar light, which results in highly reactive oxygen compounds that result in safe and effective cracking of these compounds which are harmful to human health and the surrounding environment, as well as there are researches that contribute to the production of fuel and biogas from organic waste. The University also provides ideas and advice, as well as establishing Inter-joint projects with some governmental and private institutions on matters related to environmental safety.

Nano Technology

Regarding the role that nanotechnology plays in environmental engineering, the official of the Central Equipment Laboratory at the College of Agricultural and Marine Sciences at Sultan Qaboos University explained that nanotechnology is one of the emerging scientific fields that contribute greatly to finding pioneering innovative products that contribute to supplying the electronic, medical, food, fertilizer and environmental safety sectors. This is done through the use of tiny particles (1100- nm size), which improves the basic properties of these materials, and the manufacture of these materials enabled the production of innovations that reduce energy consumption and benefit in energy storage and reduce damages caused by human activity and pollutants in addition to applications that contribute to environmental treatment. The nanotechnology will provide the huge potentials used to treat environmental problems associated with current processes in a more sustainable way with less harmful residues, as environmental applications of nanotechnology address the development of solutions to current environmental problems. Then the mechanism for applying nanotechnology to environmentally harmful compounds, whether in water or air, is described.

The Importance of Nanotechnology

Dr. Jamal Al-Sabahi said that Nanotechnology plays an important role in the various applications in our lives ranging from food, medicine, electronics, surface modification, water treatment, and huge industries, and some of its applications are part of the Fourth Industrial Revolution. The Sultanate is classified as one of the high light-density countries in the region, where environmental pollution resulting from human and industrial activities has received great attention due to the direct negative impacts on human health, bioldiversity and the economy. The water resources in the Sultanate are classified as very limited and their protection from any source of pollution is extremely important, and industries worldwide such as petroleum, refining, polymer-based industries, textiles, and agricultural materials contribute to a large extent to water, air, and soil pollution. The countries, international organizations, and environmental-related agencies develop regulations and strict environmental legislation to protect water sources, as many traditional treatment techniques are used, however each of them is limited in treating water from pollutants due to the great diversity in the presence of different compounds that need different methods to be treated. Advanced oxidation processes play an increasing role in the treatment of polluted water and have received much attention lately as a water treatment technology with environmental friendly and safe advantages while reducing toxic pollutants and converting them into environmentally friendly compounds. The use of nanotechnology received a lot of attention especially in the aspects of environmental treatment, materials science and surface modification, as these nanomaterials are widely used in the treatment of water and air from toxic organic pollutants and they are also used as an antibacterial and biological accumulator and as a sensor of the resulting environmental gases.

Future Outlook

On the future vision of the Sultanate in preserving the environment, Dr. Jamal said that, the Sultanate has achieved great progress in the field of preserving the environment and enacting laws, legislations and regulations organizing any activity in line with limiting the direct and indirect negative impacts on environment. Add to this, the global trends in general and the Sultanate's orientation in particular, in order to reuse and recycle various wastes. Environmental agencies also play an important role in monitoring the efficiency of environmental control in the industrial scale, marine environment, air quality, and other sectors through continuous monitoring to reduce industrial emissions and to improving the efficiency of manufacturing activities that are compatible with environmental safety and sustainability.

Its Effect Extends to the Environment and Living Organisms

Pesticides

Muscat - Pesticides are one of the necessities of our time, as they are increasingly used in the agricultural sector in order to protect plants and crops, and, if used improperly, they result in many damages to agricultural crops, the environment, and human health. Pesticides are defined as a group of agricultural chemical preparations that include insecticides, fungicides and hericides. Pesticides are an important component of the agricultural production system, as they have contributed to the elimination of pests, to the production of crops in large quantities, and to provide the local market with various agricultural products.

Side Effects

Damage caused by Pesticide is numerous if it is used in ways that are not safe for the environment. It negatively affects human, animals and plants health. Pesticides contribute to the exacerbation of global warming by the gas emissions it causes to rise to the atmosphere, as well as it causes what is known as acid rain phenomenon. The repeated use of pesticides leads to the destruction of soil fertility and pollution, as pesticides are one of the most dangerous pollutants to environment and soil, and it also causes damage to useful organisms and the destruction of biodiversity.

International Studies and International Organizations

The Food and Agriculture Organization of the United Nations (FAO) has made it clear that pesticides should be managed to avoid being transported from the site to land or water environments, taking into account field observations, weather conditions, treatment time, and dose amount when spraying pesticides.

The World Health Organization stressed that the impact of pesticides extends to land, sea and air and their threats affect all living organisms, including humans, stressing the importance of increasing the role of awareness about the dangers of using pesticides, except according to requirements and safe standards of public health and environment. A French study from the University of La Bourges du Lac warns of the long-term damages of agricultural pesticides to the environment and public health as they continue existing for decades before their effects disappear completely. The study revealed that the harmful effects of pesticides on the environment last for more than four decades after analyzes conducted on a lake near an agricultural area in southern France. An Egyptian study conducted by a team from Mansoura University in cooperation with the University of Munich in Germany, indicates that excessive exposure to pesticides increases the risk of developing Parkinson›s disease. A study conducted for a master degree in Gaza, entitled «Agricultural Pesticides and their Effect on Health in the Governorates of Gaza», revealed an increased risk of farmers developing a number of diseases, including renal and hepatic failure, diseases of the nervous system and cancerous tumors as a result of excessive use of pesticides and the length of exposure. The study proofed a connection between the educational level of the farmer and his way to determine the required dose of the pesticide, and that the higher the educational level, the more efficient the ability to determine the dose without excess. Statistics worldwide indicate that in 1992 pesticides caused poisoning to nearly 25 million people in developing countries, of whom nearly 20 thousand died annually.

Damages caused by improper use of pesticides:

- **Adversely affects human, animals and plants health.**
- **Contribute to global warming.**
- **Acid rain phenomenon.**
- **Destruction of soil fertility pollution,**
- **Water pollution such as wells, rivers and seas**

Methods of Transmission of the Pesticides

Pesticide damage is transmitted to humans, animals and the environment through several methods, such as the transmission of the pesticide or parts of it by touch, inhalation, through mouth, eye, or indirectly through the consumption of foodstuffs, water, and inhalation of air contaminated with effects of pesticides. Pesticides reach the water sources such as wells, rivers, and seas through several methods, including spraying it over harmful aquatic insects, in addition to dissolved residues of pesticides in agricultural soil through rain water and irrigation, as well as air and rain loaded with pesticide spray.

There are many methods of spraying pesticides, including surface spraying, as well as spraying with aircraft to control specific pests to facilitate the process of eliminating pests when they are spread in a wide area.

Legislation and Laws Regulating the Use of Pesticides in the Sultanate

The use of pesticides in the Sultanate has increased in recent years for many reasons, including interest in agriculture and a desire

are

Double-Edged Sword

Community awareness of the dangerous use of pesticides improperly is one of the best solutions to counter them

Commercial production of crops contributed to increment in using pesticides

It is forbidden to spray crops with pesticides before they are harvested. The «safety period» should be applied.

to produce it in commercial quantities for marketing inside and outside the Sultanate. Legislations and laws are issued in the Sultanate to regulate the use of pesticides, such as the Pesticides Law, issued during the year 2006 by the Royal Decree No. (64 / 2006) and its Executive Regulation No. (41 / 2012). Article (10) of this law states that anyone who performs any of the following actions is considered to be in violation of the provisions of this law, whether he undertakes it himself or indirectly through an employee or agent in order to intentionally alter, distort or destroy part of the explanatory data on the label on the package, opening or repacking the package without the written approval of the competent authority, advertising any pesticide without the written approval of the competent authority, or preventing or obstructing the ministry's employees (the Ministry of Agriculture and Fisheries) concerned with applying the provisions of this law, or imports, trades or manufactures any Pesticide without the necessary license, or imports, deals in, or manufactures any pesticide which is damaged, adulterated or expired. Article (11) of the Pesticides Law stipulates that anyone who violates Article (10) of this law or any of its executive regulations or a decision issued pursuant to it, shall be punished with a fine of no less than two hundred Omani Riyals and not more than one thousand Omani Riyals without prejudice to any more severe penalty stipulated in another law. Clauses (2), (4), (5), (6) of Article (10) of this law, provides for a penalty of imprisonment for a period of no less than 10 days and not exceeding three months and a fine of no less than five hundred Omani riyals and shall not exceed one thousand Omani Rials, or either of these two penalties. In all cases, the court may confiscate the seized pesticides or order them to be disposal of. The concerned authorities carry out continuous inspection and monitoring to ensure that the proper methods of spraying crops with pesticides are followed, but it is necessary for the farmer to have knowledge and sufficient awareness of the dangers of improperly usage of pesticides.

General Instructions

Before starting pest control with pesticides, the farmer must know the type of pest he is facing and obtain advice from the competent authority or the individuals concerned, as there are circumstances in which the use of pesticides is inappropriate.

The user of the pesticide should make sure of the recommended products for use, where to obtain them, the rates of use, the strength of concentration, the timing of spraying and the frequency of treatment. Before using the pesticide, it is necessary to read the instructions recorded on the package well, adhere to it and verify the pesticide›s validity, awareness of the amount allowed to spray, make sure that the pesticide is effective for the pest to be eliminated, and make sure that the pesticide is not adulterated, that the pesticide is not inhaled when opened, and that two pesticides are not mixed together, unless the user has sufficient experience and knowledge to secure the mixing method.

Safety Period

It is forbidden to spray crops with pesticides directly before they are harvested, as they should be sprayed before a long time which is called the Safety Period. Safety Period varies according to the type of pesticide and the crop, as the safety period ranges from 3 days to 30 days, and the longer the safety period the remaining pesticides are removed from the crop by evaporation. The reasons for the spread of pesticides in crops differ, such as the urgency of farmers to harvest the crops or not knowing how to use the pesticide, and some of them do not read the instructions written on the package.

Solutions

There are sound alternatives to pesticides to control these pests and insects, including the use of resistant varieties of agricultural seeds and trees, as well as the destruction of crop residues and the products of pruning trees and infected fruits so that insects do not collect on them, as well as scientific, studied cultivation, the use of insect traps, and changing temperatures, cold or moisture through warehouses and greenhouses It is also possible to use special extracts and vegetable oils to spray plants as they have no damage to the environment and humans, as well as deep tillage which in turn breaks down the soil and kills unfinished phases of harmful insects. To avoid or minimize pesticide damage, there are several methods such as not to keep any pesticide that is mixed with water for a long time for the purpose of using it later, and not to store pesticides in regular drinking vessels or bottles but rather to keep them in special packages, as well as keeping the pesticide in a dark, dry place with good ventilation, and training farmers to use safe pesticides and raise their awareness, and keep pesticides out of reach of children.

Prevention of Single-use Shopping Bags to Protect Human Health and Environment

The Ministry of Environment and Climate Affairs, represented by the Chemicals Department, affirmed that it will not be allowed to supply single-use shopping bags of all different types starting from the current year, and that all the procedures will not affect manufacturers as well as consumers. This decision will help to keep abreast of the developments and successive changes at the level of relevant global agreements. This came in a meeting about clarifying the merits of the draft decision banning the use of single-use plastic shopping bags and replacing them with reusable and environmentally friendly bags. This legislation comes to face serious environmental challenges related mainly to environmental protection and public health protection from the danger of plastic bags, the impact of which remains as long-term non-degradable plastic waste, in addition to the difficulty of collection and recycling, which leads to an exacerbation of this problem size. So, policies and guidelines have to be developed for manufacturers and suppliers to ensure the correct transition to single-use shopping bag alternatives.

The reasons for preparing this decision to regulate the use of shopping bags as well as the objectives envisaged in its application were highlighted, as was discussed during the discussion of the biodegradable bags, and it was clarified that the fragmentation is the transformation of the plastic bag into smaller and smaller pieces as a result of the conditions surrounding it, until it becomes very small pieces that you may not see with the naked eye, and they are called «micro-plastic», or smaller pieces and they are called «nano-plastic». This means that the plastic bag has been transformed, fragmented and crumbled from a large piece that can be seen into tiny pieces that cannot be seen, but they are still plastic and are still seriously dangerous to human being, the environment, and wildlife existence. The presence of such plastic in the form of small plastic minutes is more severe and more harmful to the health security of the human being and his environment. Such small plastic minutes permeate the components of the environment, such as soil and the depths of the ocean. Studies have shown that these tiny plastic pieces may be transferred to the organs of the human body and to the fungal organisms living in the environment.

Qatar

Fencing and Rehabilitating 12 Nurseries across the Country

The Ministry of Muncipality and Environment, represented by the Department of Protection and Wildlife, announced the fencing of 12 nurseries in various parts of the country within the framework of the protection of endangered species. Some of them have been completely closed to protect them from dangerous species. These nurseries are being cultivated, rehabilitated and protected, within the framework of the comprehensive plan of the Ministry of Muncipality and Environment for the protection and development of nurseries in various regions.

Bahrain

Bahrain Airport Company Recycles More than 1.2 Tons of Plastic

In line with the efforts of the Kingdom's government to resolve the pollution crisis caused by plastic waste, Bahrain Airport Company - the authority responsible for managing and operating Bahrain International Airport - recycled more than 1.2 tons of plastic during 2018. The Bahrain Airport Company has a hierarchy of waste management based on five main pillars: source reduction, reuse, recycling, treatment, energy extraction, and final waste disposal.

UAE

«Climate Change and Environment» Organizes the Environmental Winter Program for School Students

The Ministry of Climate Change and Environment is organizing an environmental winter program, which aims to raise environmental awareness for schoolchildren from 10 to 18 years old. The list of entities participating in the program includes the Environment Agency - Abu Dhabi, the Environmental Protection and Development Authority - Ras Al Khaimah, the Hamdan Center for the Revival of Heritage, the Fujairah Adventure Center, the Fishermen Society - Dibba Fujairah, and the Hatta Apiaries. Several activities and events will be organized within the environmental winter program, including, «Our Sweet Country» event, to visit the Al Wathba Reserve in cooperation with the Environment Agency at Abu Dhabi.

Kuwait

A Meetings Held within the Activities of the Biodiversity Monitoring and Documentation Project

In parallel with the celebration of the Wildlife Day of the GCC countries, which is held this year under the slogan «Towards Sustainable Environmental Tourism», the Environment Public Authority in cooperation with the International Union for the Conservation of Nature / Regional Office for West Asia, is holding a series of meetings as part of the activities of «Monitoring and Documenting Biological Diversity Project" in the State of Kuwait», (29 - 31 / 12 / 2019).

KSA

Locust Swarms Reached the Threat Phase

The Ministry of Environment, Water, and Agriculture announced that its exploration and control teams surveyed 171770 hectares and treated 17,296 hectares in Laith and Al-Qunfudhah in Makkah Governorate, as well as Qalawa, and Al-Makhwah in Al-Bahah, and the Saeedah Al-Sawalha and Al-Haridah Center at Asir Region in addition to Ahad Almasarha, Baysh, Shaqiq, Abu Areesh, Sabia at Jizan and some Governorates at Riyadh, Qassim and Hail.

The Start of the Application of the Law to Cut Sulfur Dioxide Emissions

The Law for Cutting Sulfur Dioxide Emissions that result from the combustion of fuel in the main engines and some auxiliary machines in ships, has come into force at the level of companies and institutions operating in marine transport worldwide, including the Oman Shipping Company. The International Maritime Organization (IMO) decided in October 2016 to set a date for the application of the law to reduce sulfur oxide emissions resulting from the process of combusting fuel inside the main engines and some auxiliary machines in ships or what is known as the "Global Sulfur Cover 2020" and which came into effect on the first of January 2020. This law is one of the requirements of the International Convention for the Prevention of Pollution from Ships, which aims to protect the marine environment from any causes of pollution resulting from the operational activities of ships such as oil pollutants, air pollutants, sewage, waste and other pollutants that pose a threat to the marine environment. As this agreement contains six annexes and each appendix addresses specific requirements for each type of marine pollution that may be issued from ships, So it is one of a large group of agreements issued by the organization that plays an effective role in preserving the oceans, seas and marine resources through urging Member states, as Flag States, Port States, or Coastal States to implement the agreements and laws that have been adopted to help maintain the integrity of the marine environment, lives, and properties. The percentage of seaborne world trade transported by ship reached more than 80%, and most of these vessels use heavy fuel that contains high levels of sulfur and that demonstrated the need for laws that limit the harmful emissions due to the health and environmental risks it causes when burning fuel. This is when heavy fuel is burned inside its engines and auxiliary machines, such as generators and steam boilers, which results in a group of chemical compounds, including sulfur dioxide, which spreads in the atmosphere as it exits the ships› chimneys. This poses a great risk to human health, causing asthma, lung diseases, blood vessels diseases and heart diseases. As far as the environment is concerned, emissions of sulfur oxide into the atmosphere may cause so-called acid rain and this type of rain poses a great danger to plants and animals.

Insects that Feed on Plants Affect in Climate Change

The results of a recent study showed that insects that eat plants affect the forest ecosystems much more than previously thought. They are a factor in filtering nutrients from the soil, i.e. loss of water-soluble plant nutrients and increased carbon dioxide emissions, and that the temperature may increase due to the increase in the number of insects that eat plants in some areas. The study was published in the «Journal of Ecology» periodical in December 16 issue, and was conducted by researchers from the University of Lund in Sweden. The statement issued by this study says that the researchers used the method of extensive meta-analysis, which includes the application of the statistical methods to the results of several studies that may be compatible or contradictory, in order to determine the trend or tendency of these results or to find a possible common relationship between them. The researchers found out that insects and large mammals affect the soil processes in a similar way, despite their different population patterns and feeding habits. The study stated that the number of insects that eat plants may increase due to climate change, especially in cold areas where many of the Carbon is isolated in the ground.

Environmental Vocabulary

The Desert Icon

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It imposes itself for the sight of all, and brushes its shadow to animals and humans as well, and has ascended the throne of places of all times of decades. In all its components benefits, and from its peers trees is much prevailing. Spreading its permanent greenness on the ground. It is an important indicator of the environment if safe or not. The vast desert cannot belong to its desert without this tree having a presence, anchored deep in the desert, branched into the air. It is the tree that lies in everyone›s memory and is not hidden from anyone.

In dry and semi-dry environments, the trees are characterized by their great adaptation to the harsh weather from the extreme heat in summer and cold in winter, and from its extreme dryness to its moisture times. This tree can withstand drought from one to twelve months, however it maintains its permanent greenness and abundant production of flowers. In dry seasons, it penetrates its strong roots deep into the soil, reaching groundwater to about 35 meters. It grows to a height of about 5 meters, and this growth decreases in mountainous areas. As it grows, its branches branch symmetrically in all directions at a 30-degree angle to give the shape of the inverted cone. Besides its lush shade, its benefits are innumerable. Its small leaves are a protein-rich food source for animals as well as their horned fruits that provide animals with energy, minerals and protein, and can also be eaten by human. It is very impressed that it has a very strong and dense wood, and is considered one of the best wood for the production of coal and firewood (about 4360 calories per kg), and burns very slowly. At the beginning of summer, this tree blooms with spherical flowers in its beautiful yellowish-white colour. Those which fail in fertilizing fall into ground for additional animal feed. These flowers are considered the most important table for bees and the best season for beekeepers where bee flies in race to suck their nectar from these flowers rich in nutrients to produce from the finest and best honey. The beekeepers call it the honey of the (Param) after the flowers Arabic name.

This tree tries to resist the challenges facing it. In addition to its superior ability to resist severe drought, it produces thorns intensively in the lower areas of it to prevent grazing by livestock, as well as showing the growth of a new trunk from the middle and extends to the top to avoid over grazing of Camels. Nature, when left, heals itself and reconciles with those around it, but when human intervenes, whether by the motive of love or benefit, he may spoil it. How many trees have been cut while they are green1?, does this human not know that he has violated a unit that has a historical, scientific, environmental and natural heritage that rarely compensates!! . Let it be, O Human, that your love of the Acacia tree pushes you to preserve and cultivate it to remains as an icon of the environment generally and icon for the desert particularly.

Wildfires

Marwa Al Mukhaini