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# DAPOLI URBAN BANK SENIOR SCIENCE COLLEGE, DAPOLI

# Eureka

## E-info letter

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Dr. Sandesh Pandurang Jagadale
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Phone- 02358 283256

**3. Name & Address of Principal:**
Principal Dr. S. P. Jagadale
Dapoli Urban Bank Senior Science College, Dapoli
Dist. Ratnagiri -415712
Phone- 02358 283256

I, Shri Dr. S. P. Jagadale hereby declared that the particulars given above are true to the best of my knowledge and belief.

Sign /-
(Dr. S.P. Jagadale, Principal)
(The editor and publisher may not agree with the views expressed in articles.)

# Mangrove the Jewel of Konkan

## Introduction:-

Mangroves of Maharashtra are well studied from the diversity point of view. Mangroves are the lifeline of coastal areas. They inhabit the strategic location between sea and land, protecting the coastal zone as bioshields. Mangrove protect from storms, tsunamis and related hazards. Mangroves are the most productive ecosystems. They grow in intertidal regions called estuaries. The estuarine ecosystems are very dynamic and ever-changing spatially as well as temporarily and show the presence of the number of zones. The occurrence of mangrove species is not generalized or random but it is location or zone specific. Comparatively, typical mangrove species have broad ecological amplitude but the associate species is restricted in distribution. Now days, mangroves are becoming victims of human encroachment. *Ex-situ* conservation and regeneration of these species are not possible. Therefore, they require immediate strategies for conservation and plantation.

As per the report of Government of India (1987) and ENVIS (1997). In Maharashtra, the area under mangrove cover is about 330 sq. km. It is in Konkan region which is a narrow patch about 720 km long and 27- 48 km broad.

## Adaptations

Mangroves have particularly specialized adaptations. Mangrove plants exhibit significant potential for climate adaptation, including the ability to withstand variations in precipitation, sea level rise, and solar ultraviolet B radiation (Rahman 1990, Swaminathan 1991, Moorthy 1995). Joshi et al. (1975) classified mangroves as salt-excluding, salt-excreting, and salt-accumulating, adhering to Walters' grouping.

## Major animal life

Varieties of animal species are found in the mangrove ecosystem. These animals are significant for the ecologically and the economically. Fish, crabs, molluscs, insects, reptiles, mammals including otters and bats, these are the major animal groups are all represented. The mangrove serves as a nursery ground for the larvae of economically significant creatures, including fish, crabs, and prawns.

## Mangrove resources

Protecting soil and maintaining balance in nature these are two benefits of mangrove forests. The mangroves are also useful due to their valuable products, can be classified as major and minor forest products, and these contribute to their usefulness. While minor products mangroves are used as a source of food, fodder, tannin, colours, and medicine. While major forest products include timber, firewood, and charcoal etc.

## Conservation and Management Plan

Mangrove ecosystem play important role in the livelihood security of coastal people. Awareness about local community, planners and decision makers, industrialists, NGOs and all concerned sectors of the society are to be made aware of importance of mangroves

and their preservation and identification of resource.

**Mangrove Ecosystem**

**Mangrove Plantation**

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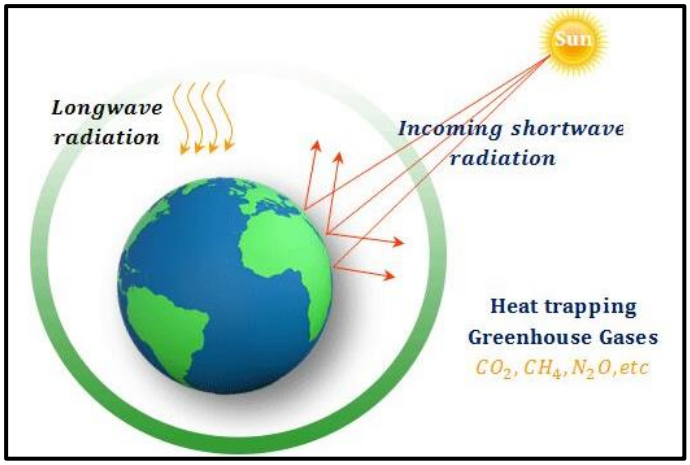
***Article by***
*Dr. Poonam Panaskar*
***Department of Botany***

# Greenhouse Effect and Global Warming




Greenhouse effect and global warming mean increasing the global temperature of the world which trapping specific heat from the earth's surface by mainly carbon dioxide and other gas molecules like methane, CFC, ozone, etc. It warming the earth's atmosphere and causes climate change.

The contribution and effect of different greenhouse gases are different and their solutions to save our environment from global warming are the challenge today.

**What is greenhouse effect?**

The name greenhouse effect comes from the fact that used in horticulture for the upbringing of green plants in the small glasshouse whose walls and roof are made of glass-sheet. The glass sheet and roof of the house allow the short wavelength of heat that comes from the sunlight to go into the greenhouses freely and trap this heat coming from objects in houses. These traping of heat or infrared radiation increases the temperature inside the greenhouse. This is called the greenhouse effect.

**How does the Greenhouse effect work?**

There is a protective layer of ozone gas in the atmosphere at a height between 15 km and 60 km. The thicket layer of ozone exists at a height of 23 km from the surface of the earth. Hence the blanket of carbon dioxide exists in the lower part atmosphere. The harmful electromagnetic spectrum like UV-light comes from sunlight shielding or absorbed by the ozone layer but visible or infrared rays pass through the layer and fall on the earth's surface. Since the infra-red spectrum has the heating the earth and various particles of earth. But the long wavelength of particles that comes from the soil, plants, and other contents of the earth does not allow it to go out from the earth's atmosphere easily. Therefore, this trapping of heat or electromagnetic radiation raises the temperature of the earth's surface.

| Greenhouse Gases | Contributions on global warming |
|---|---|
| Carbon dioxide ($CO_2$) | 50% |
| Methane ($CH_4$) | 16-20% |
| CFC | 13-18% |
| Ozone ($O_3$) | 7-8% |
| Nitrous oxide ($N_2O$) | 4-5% |
| Water vapor | ≈ 2% |

**Greenhouse gases**

The gases that trap heat or IR radiation that come from the earth's atmosphere are called greenhouse gases in environmental chemistry or science. Carbon dioxide, methane, chlorofluorocarbon, ozone, nitrous oxide, hydrofluorocarbon, PFC, sulfur hexafluoride, and water vapor are the greenhouse gases that increase global

temperature. The contribution to global warming of these gases is given below the table.

**What is global warming?**

Carbon dioxide contributes 50% of our greenhouse gases. When the atmosphere contains too much quantity of carbon dioxide, the effect of heating considerably rises. Hence the excess quantity of carbon dioxide or other greenhouse gases causes or warming the global temperature to climate change. This too much rises temperature that melts snow mountains of our environment. It causes floods in the low-lying areas of our earth. Also changes the biological activity of oceans and the patterns of cropping. Therefore, the presence of excess carbon dioxide in the atmosphere brings about climate change.

**What are the effects of greenhouse gases?**

We have already said that air is pollution caused by the presence of greenhouse gases like carbon dioxide, nitrogen dioxide, sulfur dioxide, ozone, and unburn hydrocarbon, CFC, HFC, etc. Some of the pollutants cause global warming but some cause soil pollution and water pollution through acid rain which decreases the pH scale of the earth's soil and water. Therefore, we need proper solutions to decrease these pollutants.

**Solution of greenhouse effect**

- Adding lead tetraethyl to the petrol or by the catalytic oxidation of carbon monoxide and hydrocarbons with a chemical catalyst like platinum or palladium. This method uses to save air from harmful gases released by vehicle engines.
- Balancing the quantity of carbon dioxide present in the earth's atmosphere by growing plants. This is the natural process to remove greenhouse gases from the earth's atmosphere.
- By using smoke free energy sources like solar energy, wind energy, nuclear power, etc.
- Using electrostatic precipitators. This method removes carbon dioxide produced by burning fuels like coal and oil.
- Stop the use of cooling agents like chlorofluorocarbons.
- To decrease the concentration of greenhouse gases on the earth's surface, we need to use tall chimneys in homes and factories.

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***Article by***
*Mr. Shantanu Kadam*
***Department of Chemistry***

# Customer Relationship Management (CRM)

Customer relationship management (CRM) is a technology for managing all your company's relationships and interactions with customers and potential customers. The goal is simple: Improve business relationships. It is a process, strategy, or piece of software or technology that allows businesses to manage their connections with clients, partners, and suppliers.

An effective CRM strategy is important because it reduces the cost of customer acquisition and increases the customer lifetime value. This is a valuable result because it allows business leaders to focus their time and effort on growing the business, rather than simply sustaining sales. Here are the major benefits of implementing a CRM strategy:

CRM strategies pool multiple data points of information about your customers. Other than just geographical data, it uncovers information about their preferences, values and personal goals. These fine details help you build a better customer profile.

To develop a successful CRM strategy, you need a clear vision that your team can collaborate on and execute. It requires your ability to discern between good and poor leads so that you can prioritize your actions. Implementing a CRM strategy is an ongoing effort. You may want to continue to keep track of your leads, carry out targeted marketing campaigns and reevaluate your actions.

**Define your specific goals**

Refer to your employer's organizational mission to make informed decisions about your CRM strategy. This may help you define your purpose from the very beginning. It's an important step that ensures you stay on track with every decision you make. Remember that over the long run these goals are also subject to change. Thus, you may regularly revisit this step as your strategy evolves. Here are some common CRM strategy goals for you to consider:

**Build your target customer profile**

Create a buyer profile that represents your ideal customer. In this step, you develop an understanding about who is purchasing from you and why. To build an effective buyer persona, make it as detailed as possible.

**Establish a niche for yourself in the current market**

To gain a competitive advantage in the current market, differentiate yourself from other brands and create your own niche. This way, you are less likely to lose customers to your competition. For a CRM strategy to work, form an idea about your strengths in the industry and the threats you may face.

**Invest in CRM software**

One of the most efficient ways to drive your CRM strategy is by investing in CRM software. It helps you cut down on the labor-intensive tasks of capturing and sorting out data because technology can quickly take over this part of the process.

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***Article by***

*Ms. Jyoti Chougale*

***HOD, Department of Commerce***

# Robotics Cyber Security


## Introduction:-

With the latest digital revolution and the heavy reliance on Artificial Intelligence (AI), smart robots are being employed to speed up the transformation of digital operations. In this context, the market of intelligent machines, including autonomous robots, is exponentially growing; more than 40 million robots were reportedly sold between 2016 and 2019. Robotics is one of those technologies that are witnessing tremendous expansion and growth especially with the rise of the ongoing COVID-19 pandemic. Moreover, its emergence into the Internet of Things (IoT) domain led it to be called the Internet of Robotic Things. In fact, robots play a crucial role in modern societies, offering various opportunities to help in various domains, including civilian and military sectors, as well as agricultural, industrial, and medical ones. However, there are several concerns related to robots' deployment in critical infrastructures (e.g. industrial, medical, etc.). These concerns are mainly related to security, safety, accuracy and trust. Security is primarily related to the level of protection of these robots against different types of cyber-attacks. Safety is related to the reduction of the likelihood of accidents' occurrence(s), accuracy is based on performing the intended task without any faults/mistakes, while trust is based on the level of satisfaction and capability of these robots to accurately perform and replace humans in certain fields and activities. However, various security concerns, issues, vulnerabilities, and threats are constantly arising, including the malicious misuse of these robots via cyber-attacks, which may result in serious injuries and even death.

## Motivation:-

Robots are being adopted in various sectors such as agriculture (crop monitoring and watering), industry (building and construction), military (combat and logistics), disaster relief (search and rescue), and health care (remote surgeries, remote deliveries, anti-COVID-19 use, etc.). However, recent robotic-related incidents and misuses gained the media's attention, where casualties or/and fatalities cases were reported in incidents related to terrorism/cyberterrorism, sabotage, and espionage.

According to, various robotic challenges were discussed, out of which, security was considered among the hardest ones. Advanced robot systems became more prone to a variety of cyber-attacks that target their data or (operating) systems' confidentiality, integrity, availability, authentication, and/or privacy. The main security threats and vulnerabilities targeting robotic systems were described in. Furthermore, a set of known robotic cyber-

attacks were presented in and various efforts were combined to reduce the exposure of the Robot Operating System (ROS) to various security vulnerabilities, as indicated in. Moreover, a set of energy-efficient security mechanisms were presented in. A recent work listed the current cyber-defence trends in industrial control systems.

Robot application domains Robots have been deployed in different domains and employed in different fields, including civilian and military ones, which are summarized in Fig. The figure illustrates the various robotic usages in different fields of operations for many tasks and purposes such as photography, product delivery, agriculture, wildlife monitoring, policing, search and rescue, emergency response, crisis/disaster response, casualty evacuation, reconnaissance and surveillance, counterterrorism/insurgency, counter-IEDs/unexploded ordnance, border patrol, infrastructure inspections, and science. There are different types of robots depending on their field of operation: Unmanned Aerial Vehicles (UAVs) such as drones, Autonomous Unmanned Aircraft Vehicles (AUAVs), Unmanned Aerial Combat Vehicles (UACVs) and Unmanned Aircraft Systems (UASs), Unmanned Ground Vehicles (UGVs) such as robots and autonomous vehicles, and Unmanned Underwater Vehicles (UUVs) such as underwater drones, Autonomous Surface Vehicle (ASV), Remotely Operated Underwater Vehicles (ROUVs) and Autonomous Underwater Vehicles (AUVs)

## Industrial field :-

Industrial robots are mainly used in order to reduce manpower. Robots have become artificially smart and able to perform jobs faster, safer, and with higher efficiency [38]. Such jobs include manufacturing, construction, transportation, and quality control. In particular, robots are being used in hazardous locations to perform dangerous tasks.

**Medical field :-**

Robots have been deployed in the medical domain to be used in tele-medicine, virtual care, and remote treatment concepts [29,39]. In fact, they were designed to serve as medical robots, surgical robots, and hospital robots [40]. They are used to perform small surgeries accurately, and new medical robots are capable of performing Cardio-Pulmonary Resuscitation (CPR).

**Agriculture field :-**

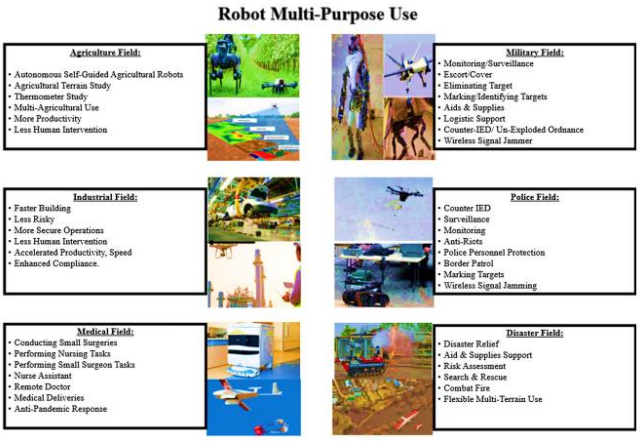
Robots are used in agriculture due to their efficient and increased performance in reducing manpower and resource consumption. They are used to perform some tasks efficiently, especially when dealing with a large farming area that requires at least a dozen of workers and several days. This enhances irrigation, crop testing, crop agriculture, and so on.

**Disaster field :-**

Disaster robots can be used to reach and find helpless people who were isolated by floods, or stuck and lost somewhere. Disaster robots can perform jobs and reach places that humans cannot. Their famous use was when Search and Rescue (SAR) robots were deployed to locate and find lost Thai cave boys safely.

**Police and law enforcement field :-**

Robots are being deployed in various police fields, especially when it comes to shooting down, neutralizing, or eliminating suspects in places that are considered too dangerous and that could lead to the loss of valuable officers' lives. A well-known use case of this application is when the police used a robot strapped with a C4 explosive and detonated it in order to kill the Dallas shooter.




## Military field:-

Military robots became the latest adopted weapons to be used in most of military operations, especially with the extensive use of Unmanned Aerial Vehicles (UAVs) to perform target detection and to launch airstrikes. Moreover, robots were used to counter the Improvised Explosive Device (IED) threat, especially in Iraq and Afghanistan. In fact, they were being used by the British army in Northern Ireland since 1970s, to combat the IEDs threat imposed by the Irish Republican Army (IRA) and its different factions and descendants. Such robot techniques (Unmanned Ground Vehicles (UGVs) and Unmanned Aerial Vehicles (UAVs)) evolved and were also used by US-led NATO forces (including the UK) in Iraq and Syria, in Yemen, Afghanistan, and Pakistan.

## Counter-pandemic field :-

During the ongoing COVID-19 pandemic caused by the SARS-CoV-2 virus, which started its outbreak in late 2019, the extensive use of robots, drones, UAVs, autonomous and unmanned vehicles grew fast, along the adoption of AI and ML techniques to ensure a faster detection of infected personnel and to limit the outbreak and infection rates . In May 2020, a drone representing the "Anti-COVID-19 Volunteer Drone Task Force" was urging New-Yorkers to wear their masks and maintain their social distancing, and respect quarantine rules. In France, "Big Brother" drones were used to enforce social distancing before being banned in May 2020.

***Article by -***
*Ms. Netranjali Mahadik*
***Department of Computer Science***

# Are We Losing Earth's Groundwater?

When we think of water, many of us think of the world's oceans, seas, lakes, and rivers, but most of the Earth's freshwater is groundwater, which supplies most of the water we drink. Groundwater is water that has traveled beneath the soil surfaces within the sediment of the ground occupying all empty spaces it finds between the surface and impenetrable rock. Groundwater is essential for life on Earth. It is estimated that 98% of the world's available freshwater is provided as groundwater. The total freshwater available as groundwater surpasses our reserves of freshwater in lakes and streams by 60-fold.

In the US, groundwater provides roughly half of all drinking water for human consumption. For rural populations, this is as much as 100%. It is also an essential domestic, commercial, and industrial water source. The world relies heavily on groundwater, although it is not often obvious how precious resource groundwater is. Without groundwater, we would lose an essential source of drinking water and water for vital activities, such as washing, bathing, and cooking. Worldwide, groundwater supports public health, the environment, and the economy. However, its importance is often overlooked. It is vital that humans do not remove too much groundwater too quickly without allowing it time to replenish. This can be done all too easily by pumping it from the earth. The latest data, unfortunately, has warned that much of the Earth's groundwater is drying up. NASA recently reported that 21 out of the world's 37 biggest aquifers (rock or sediment holding groundwater) have lost groundwater.

Recent data collected via satellite and analyzed at the Institute of Geodesy at TU Graz found that Europe severely needs groundwater. It was already understood that the continent had suffered a drought since 2018. Data has confirmed that groundwater levels have been consistently low since this year despite extreme weather such as flooding. The effects of losing groundwater impact people, animals, and the planet. The loss of groundwater in Europe is associated with the loss of aquatic habitats, the dry soils that cause numerous serious problems for agriculture, and the lack of water needed

for energy generation, such as the cooling water needed for nuclear power plants and the water source needed to power hydroelectric power plants. In other parts of the world, such as the US, where a significant portion of the population relies on water from wells, a loss of groundwater can very quickly translate to extended droughts where drinking water resources are jeopardized for entire communities. In parts of California, this has already happened. Recently, the people of East Porterville suffered extended droughts where deeper wells had to be drilled, leading to a further decrease in groundwater levels.

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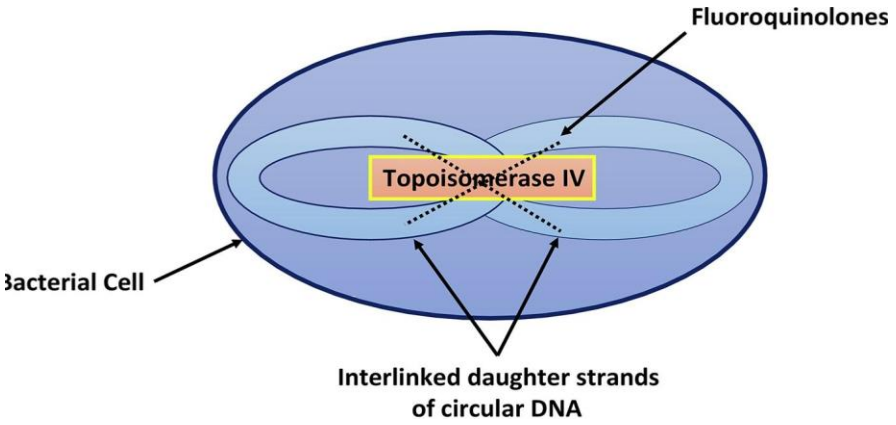
***Article by -***
*Mr. Aniruddha Sutar*
***Department of Environmental Science***

# Antibiotics Ciprofloxacin




**Mode of Action of Ciprofoxacin**

Antibiotics are medicines that fight bacterial infections in people and animals. They work by killing the bacteria or by making it hard for the bacteria to grow and multiply. Antibiotics prepared from microorganisms to inhibit growth of other microorganisms.They show there activity by inhibiting bacterial cell wall Synthesis, Protein synthesis Nucleic acid synthesis such as DNA and RNA of bacterial cell. Different antibiotics have different activities they have various mechanism action on bacteria. From that one of the antibiotic is Ciprofloxacin.

Ciprofloxacin is an antibiotic agent in the fluoroquinolone class used to treat bacterial infections such as urinary tract infections and pneumonia. Ciprofloxacin has FDA approval to treat urinary tract infections, sexually transmitted infections (*gonorrhea* and chancroid), skin, bone, joint infections, prostatitis, typhoid fever, gastrointestinal infections, lower respiratory tract infections, anthrax, plague, and salmonellosis. Ciprofloxacin ophthalmic solution is FDA-approved for treating corneal ulcers and conjunctivitis. Ciprofloxacin otic solution is approved for treating acute otitis externa caused by susceptible strains of *Pseudomonas aeruginosa* or *Staphylococcus.*

In veterinary medicines, ciprofoxacin is often recommended for respiratory tract infection, gastrointestinal tract, urinary tract infection caused by *Campylobacter*, *E.coli*, *Haemophilus* , *Mycoplasma,Pasteurella and salmonella* Species. It inhibits DNA replication by inhibiting bacterial DNA topoisomerase and DNA-gyrase. It act by inhibiting the bacterial DNA gyrase and topoisomerase II. DNA gyrase introduces negative twist in DNA and helps separate its strands. Inhibition of DNA gyrase disrupts DNA replication and repair, bacterial chromosome separation during division, and other processes involving DNA. Ciprofloxacin was patented in 1980. The oral tablet form of ciprofloxacin was approved in October 1987.

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***Article by:***
*Miss. Nishigandha Bandarkar*
***Department of Microbiology***

# Centre for Materials for Electronics Technology (C-MET)

## *Introduction*

C-Met is a receptor tyrosine kinase belonging to the MET (MNNG HOS transforming gene) family, and is expressed on the surfaces of various cells. Hepatocyte growth factor (HGF) is the ligand for this receptor. The binding of HGF to c-Met initiates a series of intracellular signals that mediate embryogenesis and wound healing in normal cells. However, in cancer cells, aberrant HGF/c-Met axis activation, which is closely related to c-Met gene mutations, overexpression, and amplification, promotes tumour development and progression by stimulating the PI3K/AKT, Ras/MAPK, JAK/STAT, SRC, Wnt/β-catenin, and other signaling pathways. Thus, c-Met and its associated signaling pathways are clinically important therapeutic targets. In this review, we elaborate on the molecular structure of c-Met and HGF and the mechanism through which their interaction activates the PI3K/AKT, Ras/MAPK, and Want signaling pathways. We also summarize the connection between c-Met and RON and EGFR, which are also receptor tyrosine kinases. Finally, we introduce the current therapeutic drugs that target c-Met in primary tumors, and their use in clinical research.

Scientific Society under Department of Electronics and Information Technology. Ministry of Communications and Information Technology,Government of India, New Delhi – 110003

Centre for Materials for Electronics Technology (C-MET) has been set up as a Registered Scientific Society in March 1990 under Department of Information Technology (formerly Department of Electronics) as a unique concept for development of viable technologies in the area of materials mainly for electronics. C-MET is operating with 3 laboratories located at Pune (Head Quarters), Hyderabad and Thrissur with specialized research mandate at each place.

With just over 25 years since its first discovery, the c-MET receptor is emerging as an important target for personalized cancer therapy. Inhibition of c-MET receptor activity in vivo has shown promising results in inhibition of tumour cell growth and in overcoming resistance to anti-EGFR therapy, which has now becoming a standard therapy for patients with advanced NSCLC. Results from early phase clinical trials are starting to demonstrate the importance of c-MET/HGF signalling in cancer biology. The challenge will be to explore and discover further other important crosstalk mechanisms involving this pathway, which could lead to further improvement in the efficacy of novel anticancer therapies and improve patient survival.

## Mission

The mission of C-MET is to develop knowledge base in the electronic materials and their processing technology and become a source of critical electronic materials, know-how and technical services

for the industry and other sectors of the economy.

## Core Programmes

- Integrated Electronics Packaging
- Nanomaterials and Devices
- Ultra High Purity Materials
- Materials for Renewable Energy
- Piezo Sensors and Actuators

C-MET, Pune, India invites applications for Research Scientists Position at C-MET from eligible and interested candidates

Dedicated to the furtherance of competent research and development in the firmament of Electronic Materials, the Centre for Materials for Electronics Technology (C-MET) functions as an autonomous scientific society under Dept. of Information Technology, Ministry of Communications and Information Technology (MCIT), Govt. of India. Besides augmenting core competence, C-MET envisions the attainment of self-sufficiency in the sphere of Electronic materials, components, and devices to cater to India's strategic and industrial-applications, exploiting indigenous resources of raw materials. Research Scientist & Research Associate at C-MET

***Eligibility/Qualification –Essential qualification:***

PhD with minimum one year or M.Tech with minimum three years industrial experience in embedded system, electronic circuit designs and product realization.

***Desirable*:**

Experience in IoT system design with expertise in interfaces to Bluetooth/Zigbee/Wifi/Lora, Sensor product design and system integration with expertise in hardware and communication protocols like UART, 12C, SPI, Expertise in electronic circuit design and multilayer PCB design, Good knowledge in International protocols and standards for electronics product design especially for sensors, Good understanding of microelectronics, working experience as team leader in an Industry.

**References**


- https://cmet.gov.in/terms-and-conditions.
- https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3225017/&sa=U&ved=2ahUKEwjr2omL4ZqCAxUURmcHHcCSDwAQFnoECBEQAQ&usg=AOvVaw3tOwSMnjlijsedUbIehUW
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***Article by:***
*Mr. Vishvesh Joshi*
***Department of Physics***

# Armadillo in medical research

The Dasypodidae family includes the nine-banded armadillo (Dasypus novemcinctus), which is primarily found in the Americas. Nine-banded armadillos, despite their name, can have 7 to 11 bands on their armour. When measured from the tip of their nose to the end of their tail, they are around 2.5 feet/0.7 metres long. They weigh around 5 kg (12 pounds) on average. Invertebrates including cockroaches, scorpions, small reptiles, bird eggs, and eggs from other mammals make up the majority of their food. Ten percent of their diet, or a relatively small portion, is made up of plant-derived foods like seeds and fruits. The 9 banded armadillo has been the subject of recorded scientific study on armadillos for more than 350 years.

**Why are they used in research?**

Nine banded armadillos have an unusual method of reproduction. Up to four genetically identical young might be born at once when the females give birth.As a result, these armadillos are crucial to the research of scientists who study reproduction and multiple births. The identicality of the offspring has also been helpful in pharmacological research. Since the genetic makeup of the siblings' armadillos is the same, the differences in how they react to drugs that scientists observe are therefore caused by the drug, not by any variation in the armadillos' DNA.Due to their low body temperature armadillos make excellent leprosy animal models. Due to the moral and practical difficulties in obtaining samples from leprosy patients who have passed away, research into leprosy and how it spreads within the body has been challenging.

**What type of research are armadillos used in?**

***A. Leprosy***

Research on leprosy profits greatly from the use of armadillos because they offer an animal model of the condition. It is incredibly challenging for scientists to culture and study the leprosy bacterium alone in the laboratory since it requires the hosts cells to flourish. Rats, rabbits, and guinea pigs, which are frequently

used to study other ailments, have also been employed in leprosy research, however researchers have shown that these animals are frequently resistant to the bacterium and do not thus make good models. Armadillos afflicted with leprosy exhibit disease progression and signs that are comparable to those in people. Trials of vaccines based on M. Leprae antigens are still going, most recently in India. The vaccine, which is based on the leprosy bacterium Mycobacterium indicus pranii (MIP), will be given to people who are living close to those who have the disease.

**Multiple births and reproductive issues**

Studies on fertility and embryology have used armadillos. The several births characteristic of armadillos was employed in a 1960s study to examine how mammals inherit their genes. Researchers were able to learn more about the genetics of single-celled organisms and the pattern of inheritance in identical human twins thanks to the usage of armadillos in this study. Since then, twin-related embryology research and implantation studies have continued to use armadillos.

**How are they looked after?**

Because they are medium-sized mammals, armadillos can be kept in facilities designed to hold animals of a similar size. Usually, adapted rabbit cages with shredded paper that acts as a simulated burrow and improves the environment and soft plastic flooring inserts are employed.

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***Article by***

*Ms. Swati M. Depolkar*

***Department of Zoology***


मुंबई विद्यापीठ
UNIVERSITY WITH POTENTIAL FOR EXCELLENCE
Best College Award
Academic Year 2016-2017
Rural Area
is conferred upon
Dapoli Education Society's
Dapoli Urban Bank,
Senior Science College
Dapoli, Dist – Ratnagiri 415 712
in recognition of valuable academic achievements and participation of the college teachers in the university system through various mechanism of the University.
Mumbai, 26th January, 2018