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PRINCIPAL
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Isolation of Fungi Present in Ground Water and Surface Water from Different Localities of Kolhapur District of Maharashtra, India.

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Abstract: Water body provides a large amount of easily accessible fresh water which is important for the stable commodity for any population. Fresh water available for human consumption represents only 0.6% of global water. Depending on geological features of the area, either groundwater or surface water is used as a primary source to produce tap water. In other regions of the world, rainwater is also a relevant source. In such fresh water reservoirs fungi cause contamination and human health problems. Hence, the present study was carried out for to understand the water fungal diversity.

Keywords: *Water, fungi, Isolation, Identification.*

Introduction

In relation to ecological aspects, the biogeochemical cycling of carbon in nature would not be possible without the participation of fungi acting as primary decomposers of organic material. Furthermore, in agricultural operations, fungi play important roles as mutualistic symbionts, pathogens and saprophytes, where they mobilize nutrients and affect the physico-chemical environment. Fungal metabolism is also responsible for the detoxification of organic pollutants and for bioremediating heavy metals in the environment. Water fungi play a crucial role in the freshwater ecosystem in nutrient cycling by breaking down leaves and woody substrates and also as symbionts (Barlocher and Kendrick, 1981). Because of broad enzymatic capabilities fungi can degrade actively most compounds therefore they are present in and have been revered from, diverse, remote and extreme aquatic habitats including lakes, steam distribution systems, drinking water and also on the surface of water and distribution pipes as well as in hemodialysis units.

Water body provides a large amount of easily accessible fresh water which is important for the stable commodity for any population. Fresh water available for human consumption represents only 0.6% of global water (Wurzbacher *et. al.*, 2011). Depending on geological features of the area, either groundwater or surface water is used as a primary source to produce tap water (DEFRA, 2011 and Gray, 2014). In other regions of the world, rainwater is also a relevant source. In such fresh water reservoirs fungi cause contamination and human health problems.

Hence, the present study was carried out to understand the water fungal diversity. For the study of fungal community present in water, we have collected ground water (Boar water) and surface water samples (well water, lake water and river water) from Kolhapur district.

Material and Method

Sample collection:

Ground water (Boar water) and surface water samples (well water, lake water and river water) were aseptically collected from one to two meters away from the bank, in pre-sterilized bottles from different water bodies of district Kolhapur (Kerle, Kapshi, Karnur), during March 2018. 1 ml of the collected sample were inoculated on to agar medium supplemented with antibiotics (Streptomycin) to inhibit bacterial growth and incubated for 24-96 h at 28±2°C. (Hageskal *et al.*, 2006).

Isolation of fungi from water:

Serial dilution agar plating (Apinis, 1963) were employed for the isolation of water fungi. Representative samples of water were taken in known quantities of sterile water and diluted serially to obtain different concentrations of the organisms distributed in the suspensions. 1 ml portions of the suspension was added to petri dishes to which suitably melted and cooled agar (45°C) medium (Czapek Dox Agar- NaNO₃ 2.0 g, KCl 0.5 g, K₂HPO₄ 1.0 g, MgSO₄·7H₂O 0.5 g, FeSO₄·7H₂O 0.01 g,) was added to mixed, thoroughly with suspension and allowed to set. Three plates from each water samples were incubated for 24-96 h at 28±2°C, and each morphologically unique fungal colony was sub-cultured and purified using standard techniques. Macroscopic characters such as colony form, structure, size and colour are also important. On the basis of morphological, microscopic characters and following relevant mycological literature the fungal isolate was identified.

Result and discussion

Ground water (boar water) showed presence of mostly organic waste degrading fungi i. e. *Mucor*, *Penicillium*. Surface water showed presence of *Mucor*, *Aspergillus flavus*, *Fusarium*, *Aspergillus niger*, *Penicillium*, *Alternaria* and *Trichoderma*.

In US work was done on filamentous fungi. According to Kelley *et al.* (2003) *Alternaria alternata*, *Aspergillus niger*, *Cladosporium* sp., *Epicoccum nigrum* and many *Penicillium* sp. were prevalent in water.

The presence, colonization and growth of fungi in tap water depends on several factors, such as location of primary water source, sun irradiation, temperature, ion composition and pH, presence of organic material, dissolved oxygen concentration, water treatment, use of materials for water distribution systems. According to some workers, the concentration of organic matter in water depends on the location and the surface area of water bodies (Wurzbacher, *et al.*, 2011; Baldy, *et al.*, 2002; Barlocher, *et al.*, 2007 and Medeiros, *et al.*, 2008). Small surface water bodies or water with low flow receive the most of organic matter due to the plant vegetation, and larger water bodies and streams on high altitude are mainly supplied with organic matter due to the algal primary producers (Wurzbacher *et al.*, 2011). Besides these, also human habitation may contribute to the water pollution with organic substances via fertilizers or industrial and household waste (Weber, *et al.*, 2009 and Wurzbacher, *et al.*, 2010). According to Tsui, *et al.* 2016, surface water contains high biomass and rich diversity of plant degrading filamentous fungi. Rudenko, *et al.* 2011, revealed that, in Europe, the majority of the isolated fungal species from surface-, ground- and tap water belong to the ascomycetous genera *Alternaria*, *Aspergillus*, *Cladosporium*, *Fusarium*, *Gibberella*, *Penicillium*, *Phoma*, *Sarocladium*, *Scopulariopsis*, *Sporothrix*, *Talaromyces* and *Trichoderma*, but also fungi from subphylum Mucormycotina, such as *Absidia*, *Mortierella*, *Mucor*, *Rhizopus* and *Umbelopsis* were regularly isolated.

Table 1: The fungi isolated from different localities of Kolhapur district of Maharashtra

Sr. No.	Place of collected samples	Isolation method	Type of water	Name of Isolated fungi
1.	Kerle	Serial dilution	Well water	<i>Mucor, Aspergillus flavus</i>
			River water	<i>Mucor, Aspergillus flavus, Aspergillus niger</i>
			Lake water	<i>Mucor, Aspergillus flavus</i>
			Boar water	<i>Mucor</i>
2	Kapshi	Serial dilution	Well water	<i>Mucor, Alternaria</i>
			River water	<i>Alternaria</i>
			Lake water	<i>Fusarium, Aspergillus niger</i>
			Boar water	<i>Penicillium</i>
3	Karnur	Serial dilution	Well water	<i>Trichoderma, Mucor</i>
			River water	<i>Aspergillus flavus, Aspergillus niger</i>
			Lake water	<i>Penicillium, Aspergillus flavus</i>
			Boar water	-

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Phytochemical screening of *Achyranthes aspera* L., *Amaranthus spinosus* L., *Parthenium hysterophorus* L., *Argemone mexicana* L., *Portulaca oleracea* L. and *Euphorbia geniculata* Ortega. from Kolhapur district of Maharashtra

Abhijeet Kasarkar, Archana Gavali, Nikita Kolekar, Shubhangi Kumbhar and Snehal Wadkar

Abstract

The phytochemicals present in weeds act as potential source of useful drugs to improve the health status of humans. Phytochemical analysis is the first step towards the discovery of useful drugs. Weeds are the richest resource of drugs and useful for the various biological activity. The present investigation includes the phytochemical screening of some common weed species from the crop fields of Kolhapur district. Phytochemical tests were carried out specially for screening secondary metabolites from the selected weed plants. The phytochemicals like Tannin, Coumarin, Saponin, Proteins, Amino acids, Flavonoids, Cardial Glycosides are present and Carbohydrates, Phlobatannins, Alkaloids are absent in these weeds. So they indicate that these leaves of weed contain a number of medicinally important compounds.

Keywords: Phytochemicals, *Achyranthes aspera* L., *Amaranthus spinosus* L., *Parthenium hysterophorus* L., *Argemone mexicana* L., *Portulaca oleracea* L. and *Euphorbia geniculata* Ortega

Introduction

Phytochemicals are, biologically active chemical compounds naturally occurring in plants. They are non-nutritive plant chemicals that have protective or disease preventive properties. They are a large group of plant-derived compounds hypothesized to be responsible for much of the disease protection conferred from diets high in fruits, vegetables, beans, cereals and plant-based beverages such as tea and wine.

They are non-essential nutrients, meaning that they are not required by the human body for sustaining life. It is well-known that plant produce these chemicals to protect themselves but recent research demonstrate that they can also protect humans against diseases. More than 4,000 of these compounds have been discovered, and it is expected that scientists will discover many more. Some of the well-known phytochemicals are lycopene in tomatoes, isoflavones in soya and flavanoids in fruits.

The presence of certain types of phytochemicals in some plants can act as a natural defense system providing protection against such things as attack from insects and grazing animals. In contrast, other plants produce phytochemicals that provide colour, aroma and flavour, thus inviting attention from potential consumers.

Vegetables could provide as many as 100 different phytochemicals. They are classified into terpenoids such as the carotenoids and other phenolic compounds flavonoids alkaloids. There are works differently like antioxidant, hormonal action, stimulation of enzymes, interference with DNA replication, anti-bacterial effect and physical action. In recent years, Secondary plant metabolites (Phytochemicals), previously with unknown pharmacological activities, has been extensively investigated as a source of medicinal agents [5]. Nature has been a source of medicinal agents since times immemorial. The importance of herbs in the management of human ailments cannot be over emphasized.

Phytochemical analysis is the primary way to the discovery of new useful drugs. Plants are the greatest reservoirs of drugs of traditional systems of medicine, phytochemical intermediates and chemical entities for synthetic drugs [2].

Weeds are the plants growing out of place and out of time. Weeds are also found to be resistant to most of the microbial and pesticidal diseases [8]. Weeds have been neglected and their use for medicinal purpose has not been considered. Phytochemical studies is the primary way to discovery of new drugs [1].

Materials and methods

Plant collection and identification

We collected *Achyranthes aspera* L., *Amaranthus spinosus* L., *Parthenium hysterophorus* L., *Argemone mexicana* L., *Portulaca oleracea* L. and *Euphorbia geniculata* Ortega. from different location of Kolhapur districts. These samples were free from disease. This plant materials were identified by stranded literature.

Extraction of plant material

Preparation of aqueous extracts

We weighed 10 gm of sample using an electronic balance and 10 gm of plant material were crushed in 100 ml of distilled water and filter through muscline cloth. These samples are used for photochemical analysis.

Preliminary Phytochemical Analysis

The individual extract was subjected to the qualitative phytochemical screening for the presence of some chemical constituents. Phytochemical test were carried out adopting standard procedure [4, 7].

Test for Alkaloids

A quantity (3 ml) of concentrated extract was taken into test cooled and filter, the filtrate was used for following test. Dragen Droff's Test: 2 drops of Dragen droff's reagent were added to 1ml of the extract. The development of a creamy ppt was indicates of the presence of alkaloids.

Test for Saponin

5 ml extract was mixed with 20 ml of distilled water then agitated in the graduated cylinder. For 15 min formation of foam indicates Saponin.

Test for Steroids

1 ml extract was dissolved in 10 ml of chloroform and equal volume of concentrated H_2SO_4 acid was added from the side of test tube. The upper layer turns red and H_2SO_4 layer showed yellow with green fluorescence. This indicates the presence of steroid.

Test for Tannin

4ml of extract was treated with 4 ml $FeCl_3$ formation of green colour indicates that presence of condensed tannin.

Test for Anthocyanin

2 ml of aqueous extract is added to 2 ml of 2N HCl and NH_3 , the appearance of pink red turns blue violet indicates presence of the Anthocyanin.

Test for Coumarin

3 ml of 10% of NaOH was the added to 2 ml of aqueous extract formation of yellow colour indicates the presence of Coumarins.

Test for Emodins

3 ml of NH_4OH and 3 ml of Benzene was added to extract appearance of the of the red colour which indicates the presence of Emodins.

Test for Protiens

Xanthoproteic Test: Extract was treated with few drops of concentrated HNO_3 formation of yellow colour indicates the presence of Protiens.

Test for Amino Acid

Ninhydrin Test: To the 2 ml of extract 2 ml on the Ninhydrin reagent was added and boil the for few minutes, formation of blue colour indicates the presence of the Amino Acid.

Test for Flavonoids

Alkaline Reagent Test: Extract was treated with 10 % of NaOH solution, formation of intense yellow colour indicates the presence of the Flavonoids.

Test for Diterpenes

Copper Acetate Test: Extract were dissolved in water and treated with copper acetate solution, formation of the emerald green colour indicates presence of Diterpenes.

Test for Phytosterol

Salkowski's Test: Extract iwas treated with chloroform and filtered. The filtered was treated with few drops of concentrated H_2SO_4 and shakes, allow the standing, appearance of golden red indicates the positive test.

Test for Phenol

Ferric chloride Test: Test extract were treated with 4 drops of Alcoholic $FeCl_3$ solution. Formation of bluish black colour indicates the presence of Phenols.

Test for Phlobatannins

Deposition of red ppt when aqueous extract of each plant sample is boiled with 10 % aqueous HCl was taken evidence of presence of the Phlobatannins.

Test for Leucoanthocyanine

5 ml of isoamyl alcohol added to the 5 ml of aqueous extract, upper layer appear red in colour indicates presence of the Leucoanthocyanine.

Test for Anthraquinone

5 ml of extract was hydrolyzed with dilute H_2SO_4 , then add the 1 ml of benzene and 1 ml of NH_4 , formation of Rose Pink coloration suggested that presence of Anthraquinone.

Test for Cardial Glycosides

Killer-Killani Test: Plant extract treaed with glacial acetic acid containing a drop of $FeCl_3$. A brown coloured ring indicates the presence of the positive test.

Test for Carbohydrates

Iodine Test: Take 2 ml of extract were treated with 5 drops of Iodine solution, gives blue colour, indicates the positive test.

Benedict's Test: Filtrate were treated with the Benedict's reagent and heated gently, orange red ppt indicates the presence of reducing sugar.

3. Results & Discussion

Table 1: Phytochemical analysis of weed like *Achyranthes aspera* L., *Parthenium hysterophorus* L. and *Amaranthus spinosus* L.

Sr. No.	Phytochemicals	<i>Achyranthes aspera</i> L.	<i>Parthenium hysterophorus</i> L.	<i>Amaranthus spinosus</i> L.
1.	Alkaloids	-	-	-
2.	Saponin	+	+	+
3.	Tannin	+	+	+
4.	Anthrocyanin	-	+	+
5.	Coumarin	+	+	+
6.	Proteins	+	+	+
7.	Amino Acids	+	+	+
8.	Flavonoids	+	+	+
9.	Phenol	+	-	-
10.	Phlobatannins	-	-	-
11.	Cardial Glycosides	+	+	+
12.	Carbohydrates	-	-	-

Table 2: Phytochemical analysis of weed like *Euphorbia geniculata* Ortega, *Argemone mexicana* L. and *Portulaca oleracea* L.

Sr. No.	Phytochemicals	<i>Euphorbia geniculata</i> Ortega.	<i>Argemone mexicana</i> L.	<i>Portulaca oleracea</i> L.
1.	Alkaloids	-	-	-
2.	Saponin	+	+	+
3.	Tannin	+	+	+
4.	Anthrocyanin	-	*	-
5.	Coumarin	+	+	+
6.	Proteins	+	+	+
7.	Amino Acids	+	+	+
8.	Flavonoids	+	+	+
9.	Phenol	+	-	-
10.	Phlobatannins	-	-	-
11.	Cardial Glycosides	+	+	+
12.	Carbohydrates	-	-	-

Note: [(+)= Positive, (-)=Negative, (*)Doutful]

The photochemical constituents of *Achyranthus aspera* L. is presented in table:1 shows presence of saponin, tannin, coumarin, protein, amino acids, flavonoid, phenol, cardial glycosides and alkaloids, anthocyanin, phlobatannins, carbohydrates are absent [3]. Saponin, tannin, anthocyanin, coumarin, protein, amino acid, flavonoid, cardial glycosides are observed and alkaloids, phenol, phlobatnnins, carbohydrates are absent in *Parthenium hysterophorus* L. [1]. In *Amaranthus spinosus* L. saponin, tannin, anthocyanin, coumarin, protein, amino acid, flavonoid, cardial glycosides are present and alkaloids, phenol, phlobatannins, carbohydrates are absent.

In *Euphorbia geniculata* Ortega. Alkaloids, Anthocyanin, Phlobatannin, Carbohydrates etc. shows negative test and Saponin, Tannin, Coumarin, Proteins, Amino acids, Flavonoids, Phenol, Cardial Glycoside etc. tests shows positive test. Alkaloids, Phenol, Phlobatannins, Carbohydrates etc. tests shows negative test as well as Saponin, Tannin, Coumarin, Proteins, Amino acids, Flavonoid, Cardial Glycosides etc. tests shows positive test in *Argemone mexicana* L. In *Portulaca oleraceae* L. Alkaloids, Anthocyanin, Phenol, Phlobatannin, Carbohydrates tests indicates negative test and Saponin, Tannin, Coumarin, Proteins, Amino acids, Flavonoids, Cardial Glycosides etc. tests indicates positive test [6].

Conclusions

The phytochemicals observed in this study shows these plants have a potency for use in producing pharmaceutical bioactive compounds for therapeutic drugs. Further studies should be carried out on this plants in order to isolate, identify the bioactive compounds and determine their mechanism in action. The presence of phytochemicals make the plant useful

for treating different diseases and have a potential for providing a drug for human use.

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Isolation and Identification of Soil Fungi from Different Localities of Kolhapur District of Maharashtra, India.

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Abstract. The present study was conducted to find out the fungal diversity in soil sample collected from District Kolhapur. During investigation 12 samples were studied. Among that 13 isolates of fungi obtained and 9 were identified with standard key and microbial expert.

Keywords: *Soil, fungi, Isolation, Identification.*

Introduction

Soil is a mixture of organic matter, minerals, gases, liquids, and organisms that together support life. Earth's body of soil is the pedosphere, which has four important functions: it is a medium for plant growth; it is a means of water storage, supply and purification; it is a modifier of Earth's atmosphere; it is a habitat for organisms; all of which, in turn, modify the soil.

The soil serves as a reservoir for many microbial communities of plants and herbs which can be producing, CO₂ and nitrogen cycle. The microorganisms plays major role in soil ecosystem. Microbial composition and functioning changes the soil quality through decomposition of organic matter, recycling of nutrients and biological control (Stefanis et al., 2013). For most of the time, fungi are either dormant, or they metabolize and grow very slowly utilizing a range of organic molecules. Fungi are not only beautiful but play a significant role in the daily life of human beings besides their utilization in industry, agriculture, medicine, food industry, textiles, bioremediation, natural cycling, as bio fertilizers and many other ways. Fungus benefits most plants by suppressing plant root diseases and fungi promote healthier plants by attacking plants pathogens with fungal enzymes. Fungi also use antagonism to reduce competition by producing antibiotics, which suppress other microorganisms from growing. They produce many vitamins which promote plant growth. Beneficial fungi also form protective webs and nets around roots and leaves to protect the host plants (Lowenfels and Lewis, 2006; Sylvia et al., 2005). Fungus also protects plants by supplying a protective health to supply both water and phosphorus to the plant roots during droughts (Magdoff and VanEs, 2009). The present study was done for identify fungal community from soil samples collected from different localities of Kolhapur district and it was identified with microbial expert.

Material and Methods

Soil samples: Soil samples (Black and Red) were collected near plant roots (Approximately 5g) with clean dry and sterile polythene bags along with sterile spatula. The collected samples were brought to the laboratory and preserved for further studies. The soil samples were collected in the month of March (2018) from different localities of Kolhapur district of Maharashtra (Chokak, Bawada, Kerli, Kagal, Mhalunge, Kapshi).

Isolation and characterization of fungi: Serial dilution agar plating (Apinis, 1963) and Warcup's soil plate method (Warcup, 1950) were employed for the isolation of soil microbes.

Fungal medium: The aliquots were cultured for fungus on Czapek Dox Agar (NaNO₃ 2.0 g, KCl 0.5 g, K₂HPO₄ 1.0 g, MgSO₄·7H₂O 0.5 g, FeSO₄·7H₂O 0.01 g); and Potato Dextrose Agar (Peeled potato 200.0 g, Dextrose 20.0g) amended with streptomycin sulphate (Patil et al., 2012; Mali et al., 2015). Three plates from each soil samples were incubated for 24-96 h at 28±2°C, and each morphologically unique fungal colony was sub-cultured and purified using standard techniques. On the basis of morphological, microscopic characters and following relevant mycological literature the fungal isolate was identified.

Results and discussion

The present study was conducted in month of March (2018) to find out the fungal diversity in soil sample collected from District Kolhapur. During investigation 12 samples were studied. Among that 13 isolates of fungi obtained and 9 were identified with standard key and microbial expert.

Soil is a multi-layered surface complex of mineral and organic constituents present in solid liquid and gaseous states. Broad soil type and, slit or clay is defined as largest to smallest of particle size. These particles pack loosely, and pour spaces, and plant roots are particular habitats for microorganisms, often in bio films (Jadhav and Shinde, 2017). A gram of garden soil can contain around 1 million fungi such as yeasts, and moulds fungi have no chlorophyll and are not able to photosynthesis. They require a chemical source of energy rather than being able to use light as an energy source as well as organic substrates to gate carbon for growth and development. Some fungi are parasitic, causing disease to their living host plant although some have beneficial with plants. Where ever adequate moisture, temperature and organic substrates are available fungi are present. The environmental, moisture, organic carbon an nitrogen play an important role in distribution of mycoflora. (Adams et al, 1999)

Present study was carried out for to understand the soil fungal diversity in Kolhapur district. Some fungi like *Mucor*, *Alternaria*, *Aspergillus flavus*, *Penicillium*, *Aspergillus niger*, *Nigrospora*, *Alternaria*, *Trichoderma*, *Penicillium* were isolated and identified. Among that *Nigrospora* was found only in red soil of Chokak. Black and red soil contains near about same fugal diversity.

Table 1: The fungi isolated from different localities of Kolhapur district of Maharashtra

Sr. No.	Place of collected samples	Type of soil	Isolation method	Media	Name of Isolated fungi
1	Chokak	Black	Serial dilution	Czapek Dox Agar	<i>Mucor, Alternaria, Aspergillus flavus</i>
				Potato Dextrose Agar	<i>Alternaria, Fusarium</i>
			Warcup's soil plate method	Czapek Dox Agar	<i>Penicillium, Aspergillus niger</i>
				Potato Dextrose Agar	<i>Alternaria, Mucor</i>
		Red	Serial dilution	Czapek Dox Agar	<i>Mucor, Alternaria, Aspergillus flavus</i>
				Potato Dextrose Agar	<i>Nigrospora, Alternaria</i>
			Warcup's soil plate method	Czapek Dox Agar	<i>Nigrospora</i>
				Potato Dextrose Agar	<i>Nigrospora, Mucor</i>
2	Bawada	Black	Serial dilution	Czapek Dox Agar	<i>Mucor, Aspergillus flavus, Aspergillus niger</i>
				Potato Dextrose Agar	<i>Trichoderma Alternaria, Aspergillus flavus</i>
			Warcup's soil plate method	Czapek Dox Agar	<i>Alternaria, Rhizopus</i>
				Potato Dextrose Agar	<i>Trichoderma, Mucor</i>
		Red	Serial dilution	Czapek Dox Agar	<i>Trichoderma, Alternaria, Penicillium</i>
				Potato Dextrose Agar	<i>Alternaria, Mucor</i>
			Warcup's soil plate method	Czapek Dox Agar	<i>Trichoderma</i>
				Potato Dextrose Agar	<i>Alternaria, Mucor, Fusarium</i>
3	Kerli	Black	Serial dilution	Czapek Dox Agar	<i>Mucor, Alternaria, Aspergillus flavus</i>
				Potato Dextrose Agar	<i>Alternaria, Mucor</i>
			Warcup's soil plate method	Czapek Dox Agar	<i>Aspergillus niger</i>

				Potato Dextrose Agar	<i>Alternaria, Rhizopus Mucor</i>
		Red	Serial dilution	Czapek Dox Agar	<i>Mucor, Alternaria, Aspergillus flavus</i>
				Potato Dextrose Agar	<i>Alternaria</i>
			Warcup's soil plate method	Czapek Dox Agar	<i>Aspergillus flavus</i>
				Potato Dextrose Agar	<i>Alternaria, Mucor</i>
4	Mhalunge	Black	Serial dilution	Czapek Dox Agar	<i>Aspergillus flavus, Aspergillus niger</i>
				Potato Dextrose Agar	<i>Mucor, Aspergillus flavus</i>
			Warcup's soil plate method	Czapek Dox Agar	<i>Alternaria</i>
				Potato Dextrose Agar	<i>Aspergillus flavus</i>
		Red	Serial dilution	Czapek Dox Agar	<i>Alternaria, Mucor</i>
				Potato Dextrose Agar	<i>Alternaria, Aspergillus flavus</i>
			Warcup's soil plate method	Czapek Dox Agar	<i>Penicillium</i>
				Potato Dextrose Agar	<i>Alternaria, Rhizopus</i>
5	Kagal	Black	Serial dilution	Czapek Dox Agar	<i>Mucor, Alternaria, Aspergillus flavus</i>
				Potato Dextrose Agar	<i>Alternaria, Mucor,</i>
			Warcup's soil plate method	Czapek Dox Agar	<i>Mucor</i>
				Potato Dextrose Agar	<i>Alternaria, Mucor</i>
		Red	Serial dilution	Czapek Dox Agar	<i>Mucor, Aspergillus flavus</i>
				Potato Dextrose Agar	<i>Mucor, Rhizopus</i>
			Warcup's soil plate method	Czapek Dox Agar	<i>Aspergillus niger</i>
				Potato Dextrose Agar	<i>Alternaria, Mucor</i>
6	Kapshi	Black	Serial dilution	Czapek Dox Agar	<i>Mucor, Alternaria, Aspergillus flavus</i>
				Potato Dextrose Agar	<i>Mucor, Trichoderma</i>
				Agar	
			Warcup's soil plate method	Czapek Dox Agar	<i>Penicillium</i>
				Potato Dextrose Agar	<i>Alternaria,</i>
		Red	Serial dilution	Czapek Dox Agar	<i>Mucor, Aspergillus flavus</i>
				Potato Dextrose Agar	<i>Aspergillus flavus</i>
			Warcup's soil plate method	Czapek Dox Agar	<i>Aspergillus flavus</i>
				Potato Dextrose Agar	<i>Mucor, Aspergillus flavus</i>

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A study of information technology skills required for managers

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Abstract

The Managers are nowadays having lot of pressure in performing their tasks in best possible way without any error or problem during the solution of problem. The various skills are required by the managers to solve the business problems and IT skills are must in present business environment. IT is widely used in various business activities e and it is giving the best results in terms of profitability. The main basic functions of management link planning, Controlling.

Keywords: information, manager, management, planning, coordinating, time Mgt

Introduction

The Information technology has changes the way business organizations perform their activities and in future this will add value to its functions. With increase in ICT [Information and Communications Technology] to a much more natural way of interacting and using the power of networked computing systems which will be connected not just to the internet or other computers, but to places, people, everyday objects and things in the world around us." This will be the basis of all IT in near future and the use will rapidly increase.

The future managers are to be well informed about the technologies up grades and they have to use these to take management discussion of planning, staffing, coordinating and motivating.

What Are Information Technology (IT) Skills?

Commonly referred to as IT, there are many job titles in the technology sector. From programming and database creation to providing general technical support, there are roles for people with many areas of interest, and many levels of expertise.

The broad swath of jobs available means that employers look for different technical skills when hiring. Some may look for expertise in a specific language or program, while others might look for more general computer skills.

What Are Technical Skills?

Technical skills involve the use of company or industry-specific methods and processes, formal problem-solving techniques, technology systems and machinery and other tools. Furthermore, they involve specialized knowledge and typically must be taught, like the education offered in a business administration program or at a vocational school. These are different from "soft skills" (what Katz would call "human" skills), which can be acquired and honed over time. Technical skills may involve performing a predetermined sequence of steps or carrying out a specific physical action. Thus, these skills can change depending on the particular processes, procedures and regulations that are standard in your industry.¹

Time Management Skill for the Managers

Many IT professionals will need to be self-directed and self-motivated, and a big part of self-directed work means an ability to manage time well. Technology work can often take longer than anticipated, as proven by how often timelines and milestones change over the course of a long project.

An IT professional should be able to accurately assess how long a project should take, and then be able to stick to those timelines. He or she should also be able to help an entire team manage their time, on a daily, weekly, monthly, and project basis.

- Scheduling
- Goal Oriented
- Digital Communications
- Manage Remote Working Teams
- Continually Review Processes for Improvement
- Multitasking
- Meeting Deadlines
- ICT (Information and Communications Technology)

Importance of Technical Skills for Managers

All three above skill types – technical, human, and conceptual – overlap and combine to create effective management. However, the position type and level of management you're in may dictate the degree to which you use technical skills in your day-to-day responsibilities.

For example, a line manager at a plant or an on-site construction manager may use technical skills directly on a daily basis and may be more mechanical and hands on. A project manager; however, may utilize technical skills to stay familiar with the work being done by his or her employees, but may not use these skills daily.

Important Technical Skills for Managers

Because technical skills are specific to the task(s) managers must complete or oversee on a daily basis, they can vary by industry and position. However, some common technical skills may be required across a number of industries, specifically within administrative and middle management positions.

- Analytical and problem-solving skills.
- Strong technical skills.
- The ability to work well under pressure.
- Attention to detail.
- Team working skills.
- Organization and time management.
- Interpersonal and communication skills.
- Management and leadership skills.

Five Essential Project Management Skills

Following are the major five essential skills for project manager managing the projects in the company.

- Communication. One of the most important skills for project managers is great communication.
- Time Management. The ability to manage time and prioritize tasks is an essential characteristic of efficient project managers.
- Organizational Awareness.
- Problem Solving.
- Leadership

The Following figures shows in brief project management functions.



Source:-

<https://www.google.co.in/search?q=Soft+skills+are+the+more+managers+wik>

Fig 1

Top Five Skills required for Managers

Soft skills are the more intangible and non-technical abilities that are sought from candidates. For example:

- Communication
- Teamwork
- Problem-solving
- Leadership
- Responsibility

Soft skills are sometimes referred to as transferable skills or professional skills. As this term implies, these are skills that are less specialized, less rooted in specific vocations and more aligned with the general disposition and personality of a candidate.

Conclusion

The IT is going to be widely used in near future and skills required are to be learnt by the managers in short span of time to take proper discussions in the company. The paper is a decent effort to understand different skill of the managers and how to develop those skills. Information technology are widely changing in terms of updating of hardware and software so that the managers should learn all those to create good environment in the organization. The problem-solving capacity will be improved if the managers start using these tools for business activities.

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Applications of internet of things

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Abstract

The Internet of things is a system presently used by maximum applications in various sectors of business government and many other applications. The IoT is the network of physical devices, vehicles, home appliances, and other items embedded with electronics, software, sensors, actuators and connectivity which enables these things to connect and exchange data. The term “Thing” in “Internet of Things” is used quite broadly. For example, a thing within the IoT could be a person with a heart monitor implant, a pet with a biochip transponder, a vehicle that has built-in sensors to alert the driver when tire pressure is low — or any other natural or man-made object that an IP address can be assigned to, thus gaining the ability to transfer data over a network. As a result, it is becoming increasingly easy to create opportunities to directly integrate the physical world into computer-based systems which results in improvements, efficiency, economic benefits and reduced human exertion.

Keywords: internet, software, hardware, computer architecture, network, thing

Introduction

With increase in ICT [Information and Communications Technology] to a much more natural way of interacting and using the power of networked computing systems which will be connected not just to the internet or other computers, but to places, people, everyday objects and things in the world around us.”

The Internet of things is a system presently used by maximum applications in various sectors of business government and many other applications which are discussed in brief below by the authors’ to know the basic ideas about the IOT and its applications to the readers. The present technology in Computer applications area and Internet is having applications which are interdisciplinary

History of iot

The IOT has a history of not so long period but the milestones are Idea of smart devices, in 1982 by a coke machine In 1999, introduction of RFID and sensor technologies. 2017, drop in the price of wireless cellular devices.

Building Blocks of Iot

- Radio Frequency Identification
- Uses electromagnetic fields to automatically identify and track tags attached to objects.
- He tags contain electronic information.
- Used for communication
- Between two devices.

NAS: Network attached storage

- Network Attached Storage
- I/P based, high performance, storage device
- Low cost
- A single SD card slot
- Two gigabit ethernet ports

Applications of Iot To different sectors

Wide range of applications in every field, creates multiple business opportunities and seamless sharing of data

Smart Homes

- Devices having capability to communicate with intangible environment
- Increased security
- You can instruct the splinter in your garden to start, open the window and so on.
- Example, Philips Hue

Philps Hue

Gives 600 to 800 colour lumens which means there is a light for every mood of yours Compatible with smart home platforms like Amazon echo

Wearables

- Devices that can be carried by a person anywhere.
- A famous trend in IoT
- Companies like Apple, Samsung, Jawbone are facing a tough competition
- Most popular example,
- Fit-Bit.

Fit: Bit

- A high performance portable device
- Can be worn on the wrist
- Tracks heart rate, workouts
- Monitors sleeping pattern
- Gets call notifications

Smart Cities

- The upcoming trend of smart cities
- Useful for smart surveillance, safer and automated

Transportation

- Smarter energy management systems and environmental monitoring
- Most widely used equipment,
- is Smart street lightening.

Smart Street Lightening

- Wireless outdoor lightening control system
- Helps in saving electricity
- Adjusts brightness of the light according to the crowd.

Healthcare

- Highly boosted sector due to IOT
- Used for recording temperatures, electrocardiogram, etc
- One such major application is Medication Dispensing Machine

Medication Dispensing Machine

- Useful for old patients.
- MDS dispenses pre-filled cups as per the scheduled dosage
- Notifies automatically when it's time to take medicine, refill, and Malfunctioning.

Agricultural Sector

- Has been proved efficient for the farmers
- Provides information to the farmers about crop yields, rainfall and soil nutrition.
- The device used in this sector is phenonet.

Problems in Iot

Following are some of the concerns of the IOT

- Security concerns
- Communication amongst devices
- Should work as one entire system
- Updates should be automatic
- People should be made aware
- Unnecessary services should be disabled

Conclusion

The IOT is the technology of future and it will create lot of applications useful to the spciety and reduce the efforts of the human beings. Although IoT seems like an extremely attractive concept in theory, we need to consider ways to improve upon the technology in order to ensure the safety of data and privacy. A glaring hole concerning IoT is the fact that there is not a comprehensive means of managing all of an individual's IoT devices. If on the other hand, we are able to fix those issues, it will certainly be interesting to witness how exactly people's behavior would change. In future this technology will be widely used for various applications in business and social/

Acknowledgement

Authors are thankful to all the friends and management of Bharati Vidyapeeth for motivating us to write this paper. All the references are hereby acknowledged used in this paper.

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A RESEARCH PAPER ON OUT COME BASED LEARNING – A NEED OF THE HOUR.

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ABSTRACT

The Education System is in the state of transformation through out the world. The students community are now demanding quality education at all levels including professional level to traditional level. The present educational courses are not tracing more on the skill development rather they are focusing more on exam based learning which in turn makes the students difficult to get placed in good companies after the completion of the course. The need to design the curriculum in which the outcome in the terms of skill in students is properly measured and colleges are given proper guidelines to teach the

subjects in such a way that students are directly benefited. This paper is decent contribution in making the awareness of Outcome based learning. The Authors have done conceptual study on this important aspect of learning system. The Graduate and post graduate students should be given proper assignments to test their skill development and they should be made aware about the new techniques and tools in their respective areas of study.

KEYWORDS:- Learning, College, Outcome, Students, Syllabus, Placement, Teaching, Skill.

INTRODUCTION

The main aim of higher education is its quality and how do we maintain it for the betterment of the students. The quality higher education is possible only when we create quality content in the syllabus. Further improvement of quality of higher education is considered critical for enabling effective participation of young people in knowledge production and participation in the knowledge economy, improving national competitiveness in a globalized world and for equipping young people with skills relevant for global and national standards and enhancing the

opportunities or social mobility. Other priority areas of action for fostering quality higher education include translation of academic research into innovations for practical use in society and economy, promoting efficient and transparent governance and management of higher education system, enhancing the capacity of the higher education system to govern itself through coordinated regulatory reform and increasing both public and private sector investment in higher education, with special emphasis on targeted and effective equity-related initiatives.

LEARNING OUTCOMES-BASED APPROACH TO CURRICULUM PLANNING AND DEVELOPMENT

The fundamental premise underlying the learning outcomes-based approach to curriculum planning and development is that higher education qualifications such as a Bachelor's Degree programmes are awarded on the basis of demonstrated achievement of outcomes (expressed in terms of knowledge, understanding, skills, attitudes and values) and academic standards expected of graduates of a programme of study. Learning outcomes specify what graduates completing a particular programme of study are expected to know, understand and be able to do at the end of their programme of study. The learning should be made more interesting and target based then making it only exam based. The Present exam system only checks the memory of the learner and do not check the analysis and application of the learnt concepts in context to daily life problems and issues. Proper exam system with scientific way to test particular skill is required at all the levels of the education system.

MAJOR CHARACTERISTICS OUTCOME BASED EDUCATION SYSTEM.

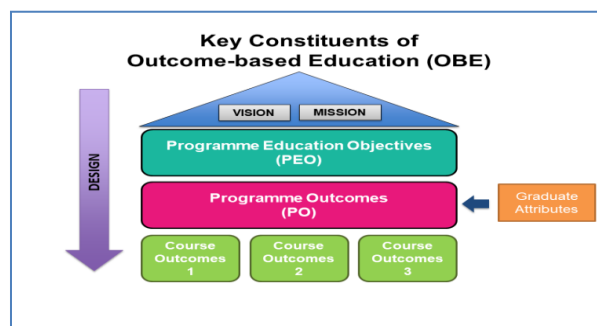
Following are the major areas in which more trace should be given to get more benefits to the students community

- 1) Program Design and syllabus Design
- 2) Course Duration and Time Frame
- 3) Teaching Learning System and Methods
- 4) Exam system and Evaluation
- 5) Placement Capability
- 6) Skill Enhancement System
- 7) Review of the best qualities in the leaning system and maintaining them.

BENEFITS OF OUTCOME BASED LEARNING

The students are the direct beneficiary of this system. They will be having following benefits in short and long term

- 1) Skill Development at young age.
- 2) Make them good citizens of the country.
- 3) Make them productive .
- 4) Improve in Knowledge.
- 5) Provide good employees to the companies
- 6) Self Development as well as family Development
- 7) Increase in financial Position of the Individual as well as companies.



Source :-

<https://www.google.com/search?q=outcome+based+learning&sa=X&bih>

KEY CONSTITUENTS OF OUTCOME BASED LEARNING OR EDUCATION

The above figure shows main parts in which the outcome based learning can be continued in the colleges . The learning outcomes-based curriculum framework for undergraduate education is a framework based on the expected learning outcomes and academic standards that are expected to be attained by graduates of a programme of study and holder of a qualification. The key outcomes that under pin curriculum planning and development at the undergraduate level include Graduate Attributes,

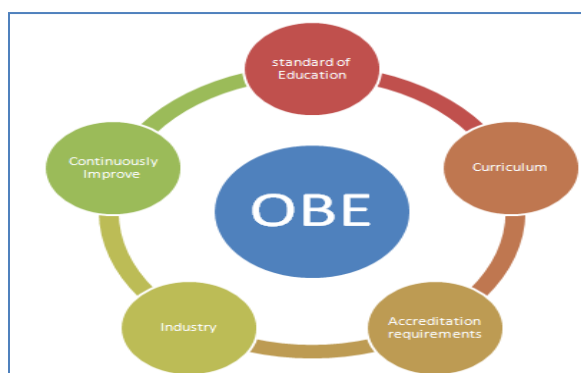
Qualification Descriptors, Programme Learning Outcomes, and Course Learning Outcomes:

GRADUATE ATTRIBUTES

The graduate attributes reflect the particular quality and feature or characteristics of an individual, including the knowledge, skills, attitudes and values that are expected to be acquired by a graduate through studies at the higher education institution (HEI) such as a college or university. The graduate attributes include capabilities that help strengthen one's abilities for widening current knowledge base and skills, gaining new knowledge and skills, undertaking future studies, performing well in a chosen career and playing a important role in problem solving.

PROGRAMME OBJECTIVES FOR THE COURSES OUTLINE TO DESIGN THE COURSE PROGRAMME STRUCTURE.

Following fig explains in short the programme objectives which can be implemented in any course for the proper out come based learning process.



Source :-

<https://www.google.com/search?q=outcome+based+learning+&tbm=is>

- 1) Curriculum
- 2) Standard of Education
- 3) Continuous Improvement

4) Industry Requirements

The main Skills involved would be Knowledge gained, Analysis , Complex Problem Solution Skills Developed . problem Analysis Skill , Maturity level , Research skill and Innovation Skill Developed by above model it is possible to test all the learning skills of the students.

Drawbacks of Outcome based Learning

Following are the main drawbacks of this system

Definition

The definitions of the outcomes decided upon are subject to interpretation by those implementing them. Across different programs or even different instructors outcomes could be interpreted differently,

Assessment problems

When determining if an outcome has been achieved, assessments may become too mechanical, looking only to see if the student has acquired the knowledge. The ability to use and apply the knowledge in different ways may not be the focus of the assessment.

Generality

Education outcomes can lead to a constrained nature of teaching and assessment. Assessing liberal outcomes such as creativity, respect for self and others, responsibility, and self-sufficiency, can become problematic. There is not a measurable, observable, or specific way to determine if a student has achieved these outcomes. Due to the nature of specific outcomes, OBE may actually work against its ideals of serving and creating individuals that have achieved many outcomes.

Involvement

The Involvement level of students is important in this system if better results are required. If students do not take serious participation results may not be as per required.

CONCLUSION :-

Outcome-based education or outcomes-based Learning, also known as standards-based education, is an educational theory that bases each part of an educational system around goals (outcomes). By the end of the educational experience, each student should have achieved the goal. There is no single specified style of teaching or assessment in this system , Students are the direct beneficiary of this system . faculty and other stakeholders should take education very seriously are impart the course to develop the skills of the students . OBE is useful to

classes, get good opportunities in placement It helps in assessments of students and helps to achieve the specified outcomes. The role of the faculty adapts into instructor, trainer, facilitator, and/or mentor based on the outcomes targeted. Following skills are developed using this method of learning Life skills, Basic skills, Professional and vocational skills, Intellectual skills, Interpersonal and personal skills. This paper is a decent contribution in creating the awareness about this important topic to the readers and stakeholders of the educational system.



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