Internal Quality Assurance Cell

JIGYASA 2022

Jigyasa-2022 activity designed by Internal Quality Assurance Cell of our college. This is special theme base activity helps to enhance student interest toward research and scientific writing skill. Every department gives project work or field work to students along with their special guidance to them for project completion. Students were performed different experimental project work or field work and collect data. This data analyze by them and submitted work in proper writing format for publication during same academic session. Jigyasa-2022 committee collect these all project and passed through editorial board for publication.

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Index

AUTOMATIC IRRIGATION SYSTEM BASED ON SOLAR CELL

Hariom S. Gawande, Shiva S. Suralkar, Jaydeep L. Sawale, Akash G. Nane

Abstract:

India is the agricultural country. Farmers from the village side suffer from Load shedding problem hence the quality and quantity of the cropscan be declined day by day. Keep these things in mind our project proposed solution for farmers. "Automatic irrigation system based on the solar energy" automatic irrigation system controls ON/OFF of the pump by sensing the moister content of the soil hence there is no need of physical presence in the farm. more over the system uses the solar energy which is continuous renewable source of energy.

**Key words:** Irrigation system, Solar based irrigation system

Introduction:

Nowadays, farmer in the agriculture field facing a lot of problems in pouring the water into their field to keep their crop green especially in summer season. It is because of farmer don't have any idea about the availability of technologies. They lose their precious time pumping water to spread the entire field until it gets properly watered. As a result, there is high chance plants get damage. But there is a solution here is a simple project where an automatic plant irrigation system is done that can be used in farming as well as in the home garden. This has also the ability to reduce overwatering which can prevent plants from dying. The term "Irrigation system" is mainly a way to give water to the plants. In the field of agriculture, it is very important to maintain the water level or wetness in the soil. Excess of water may damage the progress of plants which results in loss of farmers. To overcome this problem, auto irrigation system is designed. This system keeps information about the level of moisture in the soil. In worldwide mainly in village electricity is the main problem, villagers frequently don't have the electricity. In that situation, solar energy is used to give the power to water pumps. Solar powered auto irrigation system work in the sunlight. When the sun shines the water pumping process is a sensible way of solar energy use throughout the summer, as the water need is the highest. The water pump which is used will provide a reliable water source for plantation.

Methodology:

The connection of automatic irrigation system based on solar cell as shown in above figure. Solar cell is connected to the 9-volt battery and diode is connect between positive terminals of battery and positive terminal of solar cell. Connect pin number-4, pin number-6 and pin number-8 of the IC to the positive terminal of battery. Connect VCC of the soil sensor and NC (Normally Close) of the relay to the positive terminal of battery. Connect negative terminal of battery to the IC pin number-1, fixed end of Variable Resistor, and ground of the soil sensor and coil-2 of the relay.

Connect the variable end of the Variable Resistor to the pin number 2 of the IC and also connect these pin with the DC terminal of the soil sensor. Connect pin number 3 of the IC to the coil- 1 of the relay. Connect the positive terminal of the 9-volt DC motor pump to the common of the relay i.e. pin number 3 of the relay. Connect the positive and negative terminal of the soil sensor to the positive and negative of the moisture sensor pins.

Automatic Irrigation System Base on Solar Cell
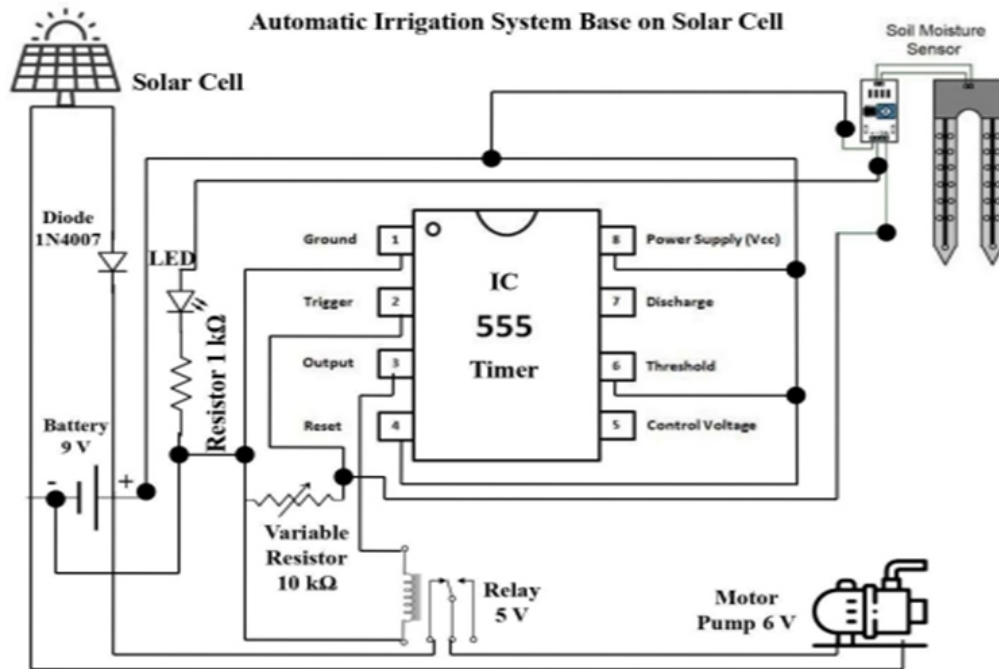
Working of Auto Irrigation System Based on Solar Cell:

We all know that soil has high resistance when it is dry and low resistance when it is wet. With this simple concept, we make this automatic plant irrigation system. This irrigation system can sense the moisture from the soil and send a signal to the pump machine to pump the water and spreading the whole field. And after getting the required moisture from the ground, it sends another signal to the pump to stop watering. The working principle of this project is very easy. First, we insert two probes in the soil. These probes conduct current when the soil is wet and stop conducting when the soil is dry. So when these two probes do not conduct any current while this system detects this situation with the help of 7404 gate IC. This will become high when the input is low. The first NE555 timer will be triggered by the gate IC-555. Then the first NE555 timer triggers the second one which is connected to the output of the first NE555 timer. The second NE555 timer which is configured as and astable mode will help to switch on the pump. This 555 timer IC allows the water to flow to the soil. After getting the soil fully wet, the probes start conducting current again. Then the output of the 7404 IC becomes low, i.e. zero, which makes the first 555 timer IC becomes low. At last remaining circuit belongs to a low condition. So, the pump is automatically switched off.

Result and discussion:

The purpose of this circuit is to water the plants automatically if you forget to watering plant or you are away from home. We all know that plants need some extra attention and care. They get spoiled or die if they don't get water regularly. Everyone gets busy with their day to day work and they sometimes forget to water them so this circuit comes in helpful in these situations. In other hand if we have lack of water but we have to provide similar water to all plant we can use drip irrigation system along with automatic irrigation system based on solar cell. As result we save time by using automatic irrigation system based on solar cell as well as water by using drip irrigation.

Conclusion:

In present day's especially farmers are facing major problems in watering their agriculture fields. Here is an idea which helps not only farmers even for watering the gardens also, which senses the soil moisture and switches the pump automatically when the power is ON. As a result, the automatic irrigation system based on solar cell was successfully designed and tested using a soil moisture sensor. It was created by combining the features of all of the hardware components that were used. Every module's presence was carefully considered and placed, resulting in the best possible operation of the unit. As a result, a solar base automatic irrigation system was successfully designed and tested.

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AUTOMATIC SOLAR BASED STUDY LAMP

Pratiksha Hage,Vaishnavi Dhule, Vaishnavi Ghule, Punam Hajare

Abstract:-

Energy sources in the world are limited and energy consumption has increased due to increase in population. Renewable energy sources are used to meet the increase in the demand for energy. Keeping this in mind in this project, we used a solar powered Study Lamp with auto intensity control. In the most states of India, rural areas suffer from load shedding of 12-14h a day. Absence of electricity for such a long time span significantly affects life of school-going children. When there no electricity access, children either don't study at all or study under a kerosene oil lamp. Children's educational performance is hampered by the absence of electricity, and kerosene lamp emits carbon monoxide which adversely affects their health. In this project we made simple study lamp using transistor which is operated on solar energy.

Keyword:- Solar, Study Lamp, Transistor, LED

Introduction: -

The one of the biggest problem for students or job worker's is load-shedding or availability of electricity in night time. The student will contribute best for world only when he is educated and availability of electricity is one of the major key factor in student and night workers life. Lack of electricity reduced performance in school, increased dropout from the school due to poor educational outcomes, if the kerosene-burning lamps are used it will increase the expenditures, kerosene lamp emits carbon monoxide which adversely effects on our health. The pollution from kerosene can cause health problems such as asthma, cataracts, heart disease, strokes, lung disease and lung cancer. The smoke and pollution released when we burn kerosene is also damaging to the environment. The solar powered study lamp works on the principle of solar cells or PV cells to absorb solar energy in the daytime and convert solar energy to the electrical energy. The converted energy is stored in the battery and the solar study lamp use solar energy. This type of lamp is utilized at night time, the lamps start automatically and it use the electrical energy which is stored in the battery. In this project, we are tried to resolve the problem in education sector by designing a study lamp based on solar energy. The solar panel is usually placed in sunlight to collect maximum energy from the sun, this energy is stored in battery. These stored electrical energy is used to light up the LED whenever required, the design basically consist of solar panel, a NPN transistor, LEDs, a battery and few resisters.

Methodology:
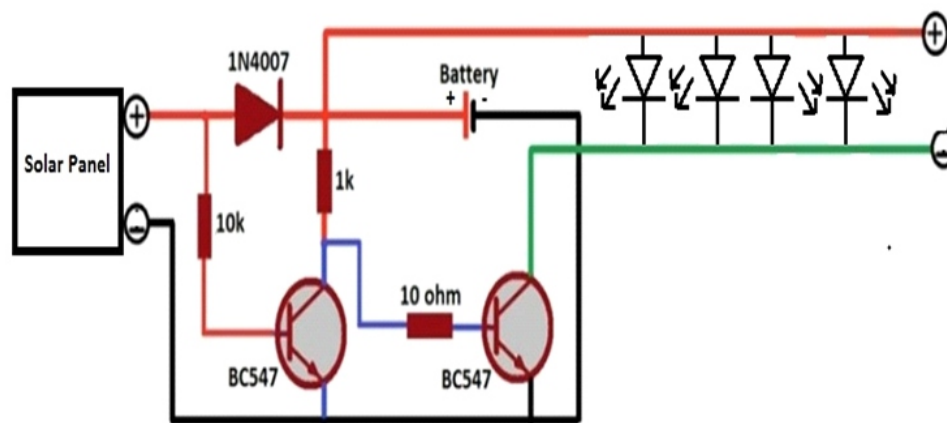
     To construct solar study lamp we use one solar panel, one diode, three resistors, two transistors, four LED, one Battery. The construction of the project is explained as follows: Solar Panel has two terminal positive and negative, the negative terminal of solar panel is connected to the negative terminal of battery and positive terminal of solar panel is connected to the 1N4007 Diode for passing the current in one way, Cathode terminal of 1N4007 diode is connected to the positive terminal of battery and Anode terminal of diode is connected to the R1(10k) resistor simultaneously it is connected to the base terminal of transistor(T1), emitter terminal of both transistor(T1and T2) are connected to the negative terminal of battery, collector terminal of T1 is connected to R2(1k) which is connected to the anode terminal of LED, the collector terminal of T1 is also connected to the R3(10ohm) which is connected to the base terminal of T2 and collector terminal of T2 is connected to the cathode terminal of LED.

WORKING: - Solar lights use photovoltaic (PV) cells, which absorb the sun's energy and create an electrical charge that moves through the panel. Wires from the solar cell connect to the battery, which converts and stores the power as chemical energy until it's needed. The battery later uses that energy to power an LED (light-emitting diode) bulb. DC current is passes to the battery through connecting wires and 1N4007 diode. Battery stored the electrical energy in the form of chemical energy for further use. In this project we use 2000v battery to store the energy. The resistor also serves as the current limiting resistor for the connected LEDs when the transistor is switched ON. The transistor is the only active component which is positioned as a switch for preventing the battery voltage from reaching the connected LEDs during day time. Collector and emitter terminal are internally shorted when current is apply to the base terminal, when current supply to the base terminal transistor is in ON state when we removed power supply connection transistor is in OFF state. However when dusk sets in the solar voltage begins to drop, and when it drops below the diode rating, the transistor slowly starts conducting, illuminating the LEDs gradually. With

complete absence of sun light or when its completely dark, the transistor conducts fully with the help of the 1k resistor, and produces full brightness over the LEDs. The next morning, the cycle repeats all over again.

Result and discussion:

A simple transistor and LED based study lamp has been made successfully. The lamps were working on solar energy. Such lamp very useful in ruler area where there is problems of electricity load shading. Also this will helpful to student for their study during late night. As the presented project model consume less power. Thus this will helpful to save electricity. The lamp is small in size thus it required very small space.

Conclusion:

We have so many problems in our daily life such as load-shedding, poor supply of electricity, to overcome from this problem we use solar based study lamp. Renewable energy source among all the benefits of solar panels the most important thing is that solar energy is truly renewable energy source, solar energy is clean and non polluting, it reduces electric bill, low maintenance costs, solar energy is free of cost. Mostly Solar study lamp is useful for study purpose because we can use it whenever we want. In rural areas there is major problem of electricity and our study lamp is based on solar energy so there is no need of electricity or power supply, students can easily study in the light of study lamp without any problem, and students can grow easily in educational sector. It save electricity so there is no need to pay electric bills. As our project is based on solar energy so it has no harm to nature.

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SOLAR BASE AUTOMATIC STREET LIGHT

Kanchan G. Dane, Pratiksha S. Lokhand , Vaishnavi M. Patokar and Sneha G. Shende

Abstract:

This project is based on the idea of maintaining maximum utilization and minimum loss of available energy.In present work a simple and powerful concept of Automatic Street light control system is proposed. The proposed system is used automatically switches ON light during night i.ewhen the ambient light will go below the specific intensity. Further, it automatically switches OFF during the day time. This system uses a dark sensor called Light Dependent Resistor (LDR) which senses the light fall on it. The system is constructed by using timer IC 555, LDR. To enhance the utility of project we use renewable energy sourcei.esolar cell. Thus in the proposedwork we constructedlow cost and power saving solar basedAutomatic Street light.

Key words: Street light, IC 555, LED, LDR, Solar cell,

Introduction:

The plenty of solar energy available during the day time is stored in a solar cell and the stored energy is used to glow the street lights during the whole night. Also the system provides a power saving mode of operation by adapting the method of automation. Nowadays, Street lighting system is an important issue should be designed well to allow users for travelling at night with good visibility in respect of safety and comfort. An efficient system ensures comfort tracking and reduces the accident during late night. On the otherhand, poorly designed lighting systems canlead to poor visibility which may not behelpful for pedestrians who are passingthrough that street. Street Lighting can cost about 10-38% of the total energy bill in typical cities worldwide, poor lighting creates unsafe conditions. Energy efficient technologies and design mechanism can reduce cost of the street lighting drastically. Manual control is prone to errors and leads to energy wastages as manually dimming of lights during midnight is impracticable. Also, dynamically tracking the Obstacle or vehicle is imposed by manual control. Solar street lights are raised light sources which are powered by solar panels generally mounted on the lighting structure or integrated into the pole itself. LDRs or Light dependent resistor are very useful especially in light/dark sensor circuit. It is a variable resistor whose resistance decrease with the increase in light intensity. It has a various advantage like low cost, high reliability, light weight and low power consumption. The solar panels charge a rechargeable battery, which powers a fluorescent or LED lamp during the night.

Methodology:
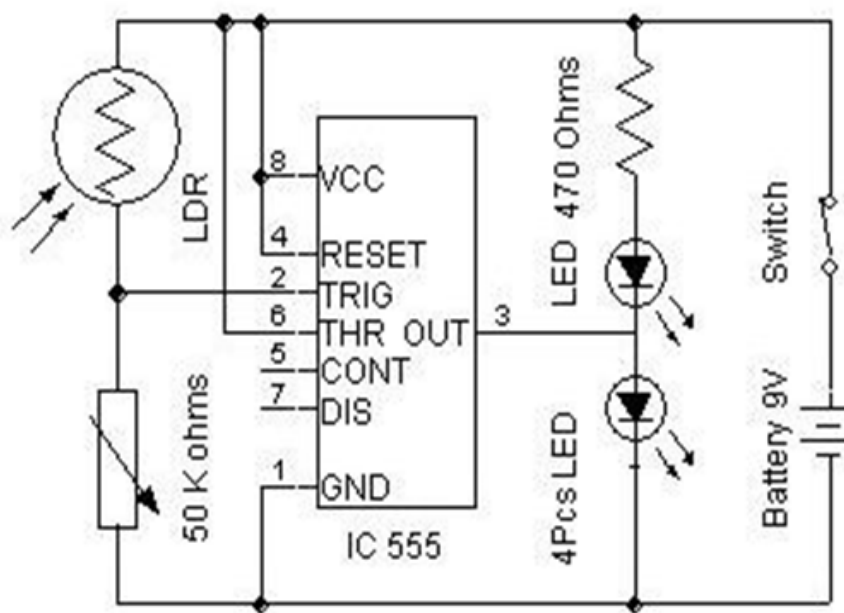
Fig 3.1 Designing of Circuit

Construction of Solar based Automatic Street light: Figure shows the solar base automatically ON/OFF street light based on the solar cell. It consists of IC 555, LDR, Battery, LED and Resister. Here we connect the positive terminal of the 9 volt battery to the switch and from the switch the positive terminal is connected to 470 ohms resister and this resister is also connected to Anode of LED. The controlled output is taken across the pin 3 w.r.t ground. Here the LED is used a light source having low power consumption. This negative terminal of battery is connected to the IC555 pin1 (GND) also the connected to the 50 K Ohms variable resister. The one end of the dark sensor i.e. LDR is connected to positive terminal of battery and Pin 2(TRIG). The one end of LDR is also connected to the pin 6(THR) of IC 555 this is also connected to the one end of 478 ohms of resister. Pin 4(Reset) And Pin 8 (VCC) is connected to the one end of LDR and one end of resister and this two pin 4 and pin 8(VCC) is commonly connected to each other. The rechargeable battery is connecting to the solar panel to charge during day.

Working of Solar base Automatic Street light:

The Working Principle of Solar Street Light is very simple. Photo voltaic solar cells convert the radiation of sun light into electrical energy. This conversion takes place by the use of the semiconductor material of the device. This process of energy conversion is generally called the "Photo voltaic effect". It is also known as solar cells, or "photo voltaic cells. "With the help of photo voltaic solar cells made of the principle effect of solar panels during the day. The received electrical energy stored in batteries. At night when the illumination reduced to 10lux.Then Solar

cells board open the circuit voltage of about 4.5V. Then charge and discharge controller is used to detect movement of the voltage value. Charge and discharge controllers are generally used to protect the battery. This circuit uses a popular timertimer I.C 555. The output goes high (1) when the trigger pin 2 is at lower then 1/3rd level of the supply voltage. Conversely the output goes low (0) when it is above 1/3rd level. So small change in the voltage of pin-2 is enough to change the level of output (pin-3) from 1 to 0 and 0 to 1. The output has only two states high and low and cannot remain in any intermediate stage. It is powered by a 6V battery for portable use. The circuit is economic in power consumption. Pin 4, 6 and 8 is connected to the positive supply and pin 1 is grounded. To detect the present of an object we have used LDR and a source of light.

The solar street lights use solar energy, a form of the renewable energy. These days it is common to see the solar street lamps along the sides of roads. The solar street lights comprise of, which absorb the solar energy during daytime. The photovoltaic cells convert solar energy into electrical energy, which is stored in the battery. At the night time the lamp starts automatically and it consumes the electricity already stored in the battery. During the day time the battery gets recharged and the process keeps on repeating every day.

Result and Discussion:

In this work we have developed a complete solar based working model using LDR and IC 555 which is used to automatic ON/OFF the street light. The system can be implemented anywhere easily and as operated on the solar energy it will vanish the dependency on electricity. The cost of operating automatic solar street lights is far less when compared to the conventional street lights. The automatic street light system is eco-friendly hence helps in reducing the carbon footprint, the installation of solar street light is simple and convenient without complicated new wiring &installation, and it only needs a concrete base and a battery pit. The installation doesn't need a lot of labour forces, materials and financial resources. The solar street light converts the sunlight into electricity without electricity consumption. It produces no pollution and no radiation, which conforms to the present environmental protection concept. This project is regulated by solar charge controller; the solar street light can adjust the light intensity according to the natural brightness and people's demand. In the remote regions, the maintenance cost for traditional street light is high.

Conclusion:

The effectiveness of the proposed street light model can be considered as a best proposal from energy saving point of view. It is not only the way to save energy but also an idea to make a proper utilization of available solar energy which is radiating every day without being used. There are lower chances of the automatic street light system overheating & risk of accidents is also

minimized. Cost of operating automatic solar street lights is far less when compared to the conventional street lights. The automatic street light system is eco-friendly & hence helps in reducing the carbon footprint.

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SOLAR BASED BRIDGE WATER OVERFLOW INDICATOR

Ashwini Sultane, Amruta Bute, Priya Thosar and Pratiksha Chavan

Abstract

Now a days during rainy season due to flow of river water over bridge causes many accident. Especially during night due to dark many people travel over bridge and due to flow of water over bridge they may flow with their vehicle with water. Thus it is dire need to get a signal of water flow over bridge. By considering such a necessity to avoid the accident during flow of water over bridge we propose a system which alerts river overflowing over bridge the people thorough buzzer or RED light indicator. The proposed work presented a simple river water flow over the bridge alert system. The proposed system is constructed by using IC 555 timer. A buzzer is used to indicate the flow of water over the bridge. Thereafter by considering energy saving necessities here the system is operated on a reachable battery which is charge by using solar panel. Such a low cost, power saving and simple system will be used to avoid accident occurs during rainy season due to river overflowing over bridge.

Key word:- IC 555, Solar cell, Buzzer, LED

Introduction: -

During the extreme weather events like heavy rains or flood situation the rivers are overflowing over bridge. During flood the water flows with very high speed and forcefully. During the water overflow over bridge it is very dangerous to cross the bridge. To cross the bridge may cause to flow the human being and heavy vehicles due to high force of water. This leads to the serious issues. In India every year during rainy season we are facing such problems. Thus there is need to overcome this problemthere must be an alarm system to avoid the above mentioned incidents. From literature survey it is observed that a water level indicator is a great way that makes a sound whenever the water level reach at a particular level. The Water Level Indicator employs a simple mechanism to detect and indicate the water level. We know that water conducts electricity, the Water level indicator works upon this fact. So water can be used as a medium to open or close a circuit.Further using time IC 555 the water level indicator makes efficient and effective. Through the buzzer or red light indicator is controlled by using such system. Through this proposed work we developed a system used to alert the river water overflow over the bridge to the people. Such alert will very helpful to avoid the incident due to river overflowing over bridge.

Methodology:

Simple water overflows Indicator circuit using IC (NE-555) is shown above in figure which shows the internal construction of water overflow indicator circuit. In present circuit the IC 555 is operated as a stable multi vibrator. From figure the circuit uses three register, one capacitor, Buzzer, LED and the solar panel. In addition, there are three resistor R1 and R2 are connected in Series with 1k and 100 k register. The one probe which senses the water level is connected to the positive terminal of battery and the second probe is connected to the pin 7 of IC through the 1k resistor. The capacitor C1 is connected in between pin 2 and ground. The output pin which pin no.3 is used for getting output and connected with negative terminal of the Buzzer at any instant its value is low or high here the Buzzer and LED are connected in parallel the buzzer will beep to indicate. The presence of water up to the level of the sensing probes and Resistor R3 is which 330 ohms is.

Working: -

The Water level indicator alarm circuit using IC 555 will produce an audible alarm when the water level reaches a present level. The circuit can be powered of a 3V battery and is very handy to use. The circuit is based on an a stable multivibrator wired around IC (NE-555).The operating frequency of the a stable multi vibrator here will depend on capacitor C1, resistances R1, R2 and the resistance across the probes A&B. When there is no water up to the probes, they will be open and so the multi vibrator will not produce oscillations and the buzzer will not beep. When there is water up to the level of probes, some current will pass through the water, the circuit will be closed to some extent, and the IC will start producing oscillations in a frequency proportional to the value of C1, R1, R2 and the resistance of water across the probes. The buzzer will beep to indicate the presence of water up to the level of the sensing probes. The two probes which are shown in the circuit should be kept at the high level for the water. The distance between the probes should be less than a few centimetres to ensure that the conduction between the probes will take place when water is touched to these probes when there is no water in the tank, all the LEDs are off as an indication that there is no water on the bridge. If the water is not up to the level of probes than the open circuit. Thus, there is no sound produced by the circuit. If the water level reaches the probes then the current flows in the water, hence the sound is produced by the buzzer.

Result and discussion:

In this Project we have successfully constructed the Solar Based Water overflow over bridge alert system by using IC-555. Further the circuits were operated by rechargeable battery charged using solar panel in order to save electricity. The simple mechanism of circuits used to

detect and indicate the water overflow over the bridge. When the water on the bridge red LED glow and buzzer get ringing. With the help of this project we can avoid the accident especially at night and we use this project for bridge but we can also utilize this application in home appliances for the tank overflow.

Conclusion:

By using this simple arrangement of circuit we can avoid the accidents and solve the problems during the rainy seasons when the bridge is overflow. This is a simple model water level indicator which can be made at your home. We conclude that this system is beneficial when the bridge is overflow it helps to avoid the accident at night. We can also use this project for the other application like in water tank overflow indicator in home, office, factories etc.

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SOLAR BASED TRAFFIC LIGHT SIGNAL SYSTEM

Sneha D. Shegokar, Sanjivani C. Mane, Shubhangi G. Jawanjal and Vaishnavi V. Bhonde

Abstract

The work describes a design approach to solve the heavy traffic problem. Through this work we developed a low cost and simple model of Traffic light controller. The proposed system is designed based on counter which mainly used in sequential circuits are used to count the number in series. In addition the time IC 555 is acts a pulse generator providing an input to the 4017 counter IC. The complete circuit was operated on solar cell based rechargeable battery. The proposed system will be very useful to manage the traffic and avoid vehicular collision. The solar sell base circuit also will helpful to save the energy.

Key word: Traffic light, Solar cell, IC 555, IC Cd4107

Introduction:

Traffic Signals, also known as traffic lights, traffic Lamps, Signal Lights, stop lights and also Known Technically as Traffic control signals are signaling devices positioned at road intersections, pedestrian crossings and other locations to control competing flows of traffic. Traffic lights, developed since 1912, are signaling devices that are conceived to control the traffic flows at road intersections, pedestrian crossings, rail trains, and other locations. Traffic lights consist of three Universal colored lights: The Green Light allows traffic to proceed in the indicated direction, The Yellow Light warns vehicles to prepare for short stop, and The Red Signal prohibits any traffic from proceeding. The world's first traffic light Signal installed at an intersection in London in 1868. On January 2, 1869, this crude traffic light exploded, injuring the policeman who was operating it. After the coming of automobiles, the situation got even worse. Police Officer William L. Potts of Detroit, Michigan, decided to do something about the problem. What he had in mind was figuring out a way to adapt railroad signals for street use. The railroads were already utilizing automatic controls. But railroad traffic travelled along parallel lines. Street traffic travelled at right angles. Potts use red, amber, and green railroad lights and about thirty-seven dollars' worth of wire and electrical controls to make the world's first 4-way three colour traffic light. It was installed in 1920 on the corner of Woodward and Michigan Avenues in Detroit. Within a year, Detroit had installed a total of fifteen of the new automatic lights. At about the same time, Garrett Morgan of Cleveland, Ohio realized the need to control the flow of traffic.

The traffic jams are the common problem in most of the city in the world. The one of the main cause of this problem is accident. The government has carried out a few rules to overcome this

problem. Beside take the punishment to all the traffic offenders, the traffic lights have been made at the location that high risk in accident. However, increasing the numbers traffic lights have contributed some contra issues/problems increasing the number of vehicle in road, have cause the heavy traffic jams. This happened usually at the main junctions commonly at the morning, before office hour and at the evening, after the office hour. Aim of this project is to make a traffic signal that works on Solar cell, which works automatically and save electricity.

Methodology:

Figure 1: Road traffic

Designing Of Circuit:

This project consists of IC 555 timer, Decade counter 4017 IC, 1N 4007 diode, Resistor, Variable resistor, Capacitor, Red, Yellow and green LED's, Printed circuit board (PCB), Solar cell and Battery. Here dc electric supply is generated by the solar cell is used as power provider for our circuit. IC 555 timer works as an a stable multivibrator mode and produces pulses as output. We can change the time period of the output pulse by changing the value of R1, RE and C1. Here we have replaced the R1 resistance with a potentiometer (VR1). So we can change the time period of the output pulse by rotating the potentiometer knob. So, the 555 timer IC acts as a square wave generator and generated clock pulse. IC555 pin 3 is connected with R2, and pin 8 is VCC power supply and pin 4 is reset, then pin 7 connected between R1 and variable resister and pin 6 and pin 2 connected with variable resistor then pin 1 is connected to ground. This input can change the shifting time of the traffic light (LEDs) and the decade counter 4017 IC pin 13 and pin 15 are connected to the ground and decade counter 4017 IC pin 14 is connected to the R2 .The timer IC biased with 9volt power supply, the green red and yellow LED output control by discharge pin , VCC supply for this IC provides through output and timer elements of timer IC 555 by varryingVR1 and VR2 variable resister we can vary the time delay between LEDs, here timer IC

control voltage pin 5, LED arrangements of traffic light is shown in circuit diagram.

Figure 2: Circuit Diagram of simple traffic light control system

This simple four-way traffic light circuit has two stage one is timing and second is counting stage another one is indication lights stage. Those indication lights are should be properly placed on four ways. Here timer IC 555 placed with timing Resistor R1, VR1 these pulse are decides the timing interval of traffic light signal. Output pulse from timer IC is fed into Counter IC CD4017 clock input through R2 Resistor. Counter IC output Q0 to Q3 will drive Green signal for North & South Lane, Red signal for East & West ways. Output Q4 drives Yellow signal for North & South ways. Output Q5 to Q8 will drive Green signal for East & West Lane, Red signal for North & South ways. Output Q9 drives Yellow signal for East & West ways.

Working of Solar Based Traffic Light Signal:

The solar traffic signal is powered by solar panels, which is fast to install and easy to move. It is suitable for newly built intersections with large traffic flow and urgent need for new traffic signals. It can meet the needs of emergency power failure, power restriction and other emergencies. Coming to the working principle of traffic light, the main IC is 4017 Counter IC which is used to glow the red, yellow and green LEDs respectively. 555 timer act as a pulse

generate providing and input to the 4017 Counter IC. Timing of glow certain lights totally depends upon the 555 timer's pulse, which we can control via the potentiometer so if you want to change the time of glow, you can do so by varying the potentiometer, having the responsibility for the timing. LEDs are not connected directly with 4017 Counter, as the lights won't be stable. We have use the combination of 1N4007 diodes and the LEDs in order to get the appropriate output. This circuit is that you can never have an exact timing with this, however you will have based estimated. The solar panel receives the sun light to generate electricity, and the controller of which is used for battery charging. The controller has function of preventing inverted connection, inverted charging, excessive discharge, overcharging and overloading and automatic protection for short circuit, boasting features such as automatic identification of day and night, automatic detection of voltage, automatic storage battery protection, easy installation and no pollution. The battery discharge electricity to the signal machine, transmitter, receiver and signal light via the controller. The 1N4007 is a rectifier diode, designed specifically for circuits that need to convert alternating current to direct current .The 555 IC is an integrated circuit used in a variety of timer, delay, Pulse generation and oscillator application. They work with a stable multivibrator.

Result and Conclusion:

Simple, low cost and energy saving automatic traffic controlled system is developed successfully by using timer IC 555.The proposed system will be used to overcome the problem of traffic jam on intersection at the traffic signal system. Here the first objective is developing priority based signaling which helps to give priority to emergency vehicles in the road. This approach is used to control the traffic smoothly. It is also healthful to overcome the traffic jam problem and avoiding the accident. The ready demo project model is shows in figure 3

Figure 3 model of solar based traffic light system

Conclusion:

The developed traffic control system will be helpful to avoid the accidents and solve the problems of heavy traffic. We conclude that this system is beneficial in metro cities where there is a serious problem of heavy traffic. The effectiveness of the proposed system can be considered as a best proposal from energy saving point of view. The proposed system is very efficient and low cost thus this will very effectively have implanted in for traffic controlled purpose.

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PHYTOCHEMICAL ANALYSIS OF CLEOME VISCOSA

Gayatri Katole, Gunjan Ingle

Abstract

The pharmacological studies have shown that CV possesses various notable biological activities such as anthelmintic, antimicrobial, analgesic, anti-inflammatory, immunomodulatory, antipyretic, psychophar-macological, antidiarrheal, and hepatoprotective activities. A wide variety of phytoprinciples have been isolated from the plant. The present review is an effort to consolidate traditional, ethnobotanical, phyto-chemical, and pharmacological information available on C. viscosa.

Key wards:- Phytochemical analysis, Cleome Vicosa, Medicinal Plant.

Introduction

Cleome viscosa), commonly known as "wild or dog mustard," is an annual, sticky herb found as a common weed all over the plains of India and throughout the tropics of the world. The whole plant and its parts (leaves, seeds, and roots) are widely used in traditional and folkloric systems of medicine. In traditional systems of medicine the plant is reported to possess beneficial effects as an anthelmintic, antiseptic, carminative, antiscorbutic, sudorific, febrifuge, and cardiac stimulant. Following the various traditional claims for the use of C. viscosa (CV) as a cure of numerous diseases, considerable efforts have been made by researchers to verify its utility through scientific pharmacological screenings. Cleome viscosa (CV) icosandra Linn.) is a weed distributedthrough-out the tropics of the world and the plains of India (Nadkarni, 1982). The plant is an annual, sticky herb with a strong penetrating odor, and is clothed with glan-dular and simple hairs. It grows about 30- 90 cm high and is branched. The leaves are 3-5 foliate, obovate, and obtuse, gradually becoming shorter upward. The flowers are yellow, axillary, growing out into a lax raceme. The fruits are capsules, compressed and hairy throughout, while the seeds are finely transversely striate, subglobose, and become brownish-black when ripe (Vaidyaratnam, 1994). CV is known by various names such as wild mustard, dog mustard, and sticky cleome. In India, the plant is known by various ver-nacular names such as Hul-Hul, Pashugandha, Pivala tilvana, Kanphuti, and Talwani. The plant is a popular remedy for a variety of ailments as documented in ethnobotanical surveys and traditional systems of medicine, such as Ayurveda and Unani (Chatterjee & Prakashi, 1991).

Methodology:

Cleome viscosea

Historical Background

Botanical Name: Cleome viscosa L.

Common Name: Pili Talavani, Talavani

Plant Family: Capparaceae or Capparidaceae

Plant Form: Herb

Occurrence (Special Areas): Gujarat Forestry Research Foundation, Indroda Park, SaritaUdyan, Van Chetana Kendra, Basan

Habit: An annual erect herb having tap rootsystem.

Stem: Erect, well branched, herbaceous, green, solid and pubescent.

Leaves: Ramal and cauline, alternate,exstipulate, palmately compound, tri- to pentafoliate, petiolate but pinnae are sessile, ovate-lanceolate, hiry, acute, multicostatereticulate venation.

Inflorescence: Racemose raceme.

Flowers: Bracteate, pedicellate, complete,hermaphrodite, actinomorphic, tetramerous, hypogynous, generally yellow coloured with very long pedicel.Calyx composed of 4 sepals, polysepalous, valvate, sepals arranged in two whorls of two each

Material and Method:

Cleome Viscosa leafs were collected, cleaned and washed with distilled water and air dried. Leaves of cleome viscosa were collected from field and garden. Fresh Cleome viscosa leaves were taken and washed with tap water for removing unwanted dust particles and then dried in shed for 2

to 3 days at 37° C. For making its aqueous solution, powder extract was added in distilled water for overnight

Qualitative Evaluation of Plant Extracts for Photochemical

The extracts were subjected to preliminary qualitative phytochemical screening for the presence of various phytoconstituents following the standard methods.

1. Test for alkaloids: 2 ml of filtrate was taken and followed by addition of 1% HCL. Creamish color indicated the presence of alkaloids.

2. Test for phenols : 2 ml of filtrate was taken in test tube and 1 ml of 1% $FeCl_3$, added to it. Brown haziness indicated the presence of phenols.

3. Test for tannins: 2 ml of filtrate was taken followed by addition of 2 ml of $FeCl_3$, Brownish color indicated the presence of tannins.

4. Test for terpenoids:

5   ml of each extract was mixed in 2 ml of $CHCl_3$, and concentrated H_2SO_4, (3 ml) was carefully added to form a layer. A reddish brown coloration at the interface was formed to show the positive result for terpenoids.

5. Test for nitrogen: Take 0.5 ml sodium fusion extract add freshly prepared $FeSO_4$, boil, cool and add excess of dilute H_2SO_4 to it. Blue color indicates the presence of nitrogen.

6. Test for Sulphur: Take 0.5 ml of sodium fusion extract add 1-2 drops of sodium nitroprusside solution. Purple color indicates presence of Sodium.

7. Test for N and S: 0.5 ml of sodium extract was mixed with dil HCI add 1-2 drops of freshly prepared $FeCl_3$ solution. Blood red color indicates the presence of Sulphur and nitrogen.

8. Test for flavonoids: 5 ml of diluted NH, solution was added to a portion of the filtrate of plant extract followed by addition of concentrated HCI. Yellow color indicated the presence of flavonoids.

9. Test for saponins: 1 ml of filtrate was mixed with 5 ml of distilled H,O and shaken vigorously for a stable froth. The persistence of frothing indicated the presence of saponins.

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

11. Test for Leucoanthocyanins: 5 ml of aqueous extract added to 5 ml of isoamyl alcohol. Upper layer appears red in colour indicates for presence of leucoanthocyanins.

Table-1- Phytochemical analysis of CV.

SN	Test	Observation	Inferences
1	Test for Alkaloids	Cremish Colour	Alkaloids present
2	Test for Phenols	Brownish Colour	Phenol present
3	Test for Tannins	Browinsh colour	Tannins present
4	Test for Terpenoids	Reddish colur	Terpenoids present
5	Test for Nitrogen	No change	Nitrogen absent
6	Test for Sulphur	No change	Sulphur absent
7	Test for Sulphur and Nitrogen	No change	Both absent
8	Test for Flavonoids	Yellow colour	Flavonoids present
9	Test for Saponins	Persistence of frothing	Saponins present
10	Test for Coumarins	Yellow colour	Coumarins present
11	Test for Leucoanthocyanides	Red colour	Leucoanthocyanides present

Result and discussion:-

Phytochemical analysis conducted on the plant extracts revealed the presence of constituents which are known to exhibit medicinal as well as physiological activities. During this study analyzed phenols, tannins, flavonoids, saponins, glycosides, steroids, terpenoids, andalkaloids. The phenolic compounds are one of the largest and most ubiquitous groups of plant metabolites. They possess biological properties such as antiapoptosis, antiaging anticarcinogen, antinflammation, antiatherosclerosis, cardiovascular protection and improvement of endothelial function, as well as inhibition of angiogenesis and cell proliferation activities. Several studies have described the antioxidant properties of medicinal plants which are rich in phenolic compounds. Natural antioxidant mainly come from plants in the form of phenolic compounds such as flavonoid, phenolic acids, tocopherols etc.Tannins bind to proline rich protein and interfere with protein synthesis. Flavonoids are hydroxylated phenolic substances known to be synthesized by plants in response to microbial infection and they have been found to be antimicrobial substances against wide array of microorganisms in vitro. Their activity is probably due to their ability to complex with extracellular and soluble proteins and to complex with bacterial cell wall .They also is effective antioxidant and show strong anticancer activities .The plant extracts were also revealed to contain saponins which are known to produce inhibitory effect on inflammation. Saponins have the property of precipitating and coagulating red blood cells. Some of the characteristics of saponins include formation of foams in aqueous solutions, hemolytic activity, cholesterol binding properties and bitterness. Steroids have been reported to have antibacterial properties and they are very important compounds especially due to their relationship with compounds such as sex hormones Alkaloids have been associated with medicinal uses for centuries and one of their

common biological properties is their cytotoxicity. Several workers have reported the analgesic, antispasmodic and antibacterial properties of alkaloids. Glycosides are known to lower the pressure according to many reports. The results obtained in this study thus suggest the identified phytochemical compounds may be the bioactive constituents and these plants are proving to be an increasingly valuable reservoir of bioactive compounds of substantial medicinal merit.

Conclusion:-

The extracts of leaves showed the presence of important secondary metabolites which have tremendous medicinal values. Thus, the use of this plant in ayurvedic system of medicines can be correlated with the modern-day science which is based on phytoconstituents. Thus, it can be concluded that the leaves of C. viscosa are a potential source of biologically active chemical constituents. Further studies can also be taken up to investigate the lead compounds of pharmaceutical importance from the plant. Thus, it can be concluded that the leaves of C. viscosa are a potential source of biologically active chemical constituents. Further studies can also be taken up to investigate the lead compounds of pharmaceutical importance of the plant.

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ACID NEUTRALIZING CAPACITY (ANC) OF PLANT EXTRACT

Abhishek Gupta, Dnyaneshwar Nile, Dhiraj Maskar, Om Deshmukh, Suhas Borokar

Abstract:

Medicinal plants are present in over environment and these are used against to various types of diseases. Hence present scheme of this study To Determine the Acid Neutralizing Capacity (ANC) of plant extracts. In this work 6 important medicinal plants are used, these are easily available in surrounding area and used in daily life such as Curry Tree (Sweet Neem), Azadirachta (Neem Tree), Betel, Mentha (Podhina), Cymbopogon citratus (lemon grass) and Tridax Procumbens. Volumetric technique is used to measure neutralizing capacity during experiment.

Key ward: ANC, plant extract, medicinal plants.

Introduction

Herbal medicine has a long history in treatment of several diseases1.. Medicinal herbs are used to treat illness, maintain and promote health2. According to the World Health Organization (WHO), 80% of the world population use natural resources in healthcare mainly based on plants and plant extracts3. Gastric Acidity in the form of heartburn, flatulence, dyspepsia, etc. is a common disorder seen to affect a vast number of people all over the world. Gastric Acidity is formed due to Excessive secretion of stomach acid, HCl and it can inflame the stomach and cause ulcers4. Antacids provide a symptomatic relief from these symptoms by neutralizing the excess gastric acid upon oral administration. Acid neutralizing capacity (ANC) is the most commonly used measure to express potency of an antacid. Various known artificial antacids are commonly used to treat hyperacidity. Despite this, drugs obtained from the plant kingdom may serve as useful sources in the development of new natural antacids5.According to Food and Drug Administration; antacids are medicines that neutralize stomach acids. Antacids work by either increasing the pH, neutralizing acidity, or by lowering or blocking The secretion of acid by gastric cells to reduce acidity in the Stomach6. The controversies related to the regular use of antacids and the numerous studied side effects lead one to think of alternative Approaches to finding the solution for the problem of acidity that affects millions daily. Several natural antacids have been in use since time immemorial in Indian homes and most of them are common kitchen ingredients and pose no threat of any adverse effects7. The present study on determine acid neutralizing capacity of different plants.

Plants	Chemicals	Ingredients	Medicinal Used
Curry Tree (Sweet Neem)	Linalool, geranyl acetate, oxygenated monoterpenes, elemol, myrcene, allo-ocimene, α-terpinene	Vitamin A, vitamin B, vitamin C, vitamin B2, calcium, and iron.	Treatment of anaemia, diabetes, indigestion, obesity, kidney problems, hair and skin problems.
Azadirachta (Neem Tree)	nimbin, nimbanene, 6-desacetylnimbinene, nimbandiol, nimbolide, ascorbic acid, n-hexacosanol and amino acid, 7-desacetyl-7-benzoylazadiradione, 7-desacetyl-7-benzoylgedunin, 17-hydroxyazadiradione and nimbiol [	Protein (7.1%), carbohydrates (22.9%), minerals, calcium, phosphorus, vitamin C, carotene etc	anthelmintic, antifungal, antidiabetic, antibacterial, contraceptive, and sedative.
Betel	Terpinine, P-cymene, carvacrol, chavicol and its derivatives, allyl catechol, eugenol, estragol, oxalic acid, malic acid and amino acids.	vitamins like vitamin C, thiamine, niacin, riboflavin and carotene and are a great source of calcium	lowering high blood glucose levels and aids in the management of diabetes mellitus
Mentha (Podhina)	Terpene alcohol called menthol or peppermint camphor, or 2-isopropyl-5-methylcyclohexanol,	Potassium. Magnesium. Calcium. Phosphorus. Vitamin C. iron. vitamin A.	Antimicrobial, carminative, stimulant, antispasmodic and for the treatment of various diseases such as headaches and digestive disorders
Cymbopogon citratus (lemon grass)	Terpenes, alcohols, ketones, aldehyde and esters.	Minerals in lemongrass include calcium (3 mg), potassium (34 mg), manganese (0.2 mg), magnesium (2.9 mg), and iron (0.4 mg). Lemongrass also provides certain vitamins (in very small amounts) including, vitamin A, vitamin C, folate, and niaci	digestive tract spasms, stomachache, high blood pressure, convulsions, pain, vomiting, cough, achy joints (rheumatism), fever, the common cold, and exhaustion. It is also used to kill germs and as a mild astringent.

Methodology:

All freshly prepared solutions are used during this work. Prepared 0.1 N standard solution of oxalic acid then standardized to NaON solution. Standardized NaOH solution used to standardized HCl solution and through the back titration find out concentration of HCl neutralized by plant various extracts. And determine neutralization capacity of medicinal plant extracts. Obtained data tabulated in following tables.

SN	Solution	Concentration	
		(Prepared)	Experimental
1	Oxalic Acid	0.1	--
2	NaOH	0.1	0.12
3	HCl	0.1	0.11

Result and Discussion:

$N_1V_1 = N_2V_2$ this equation used to determine concentration of various liquid solution N_1 is a normality of standard solution, N_2 is normality of other solution (whose standardization carried out), V_1 is volume of standard solution, and V_2 is the volume of NaOH required for reaction completion.

Table-1: Volumetric analysis of various plant extracts.

Sr. No	Plant extract solutions	Volume of known Oxalic Acid (0.1 N)	Volume of NaOH required in ml			Mean
1.	Curry Tree (Sweet Neem)	10 ml	11	10	9	10
2.	Azadirachta Indica (Neem Tree)	10 ml	12	11	10	11
3.	Betel	10 ml	14	10	12	12
4.	Mentha (Podhina)	10 ml	9	7	8	8
5.	Cymbopogon citrates (lemongrass)	10 ml	10	11	10.5	10.5
6.	Tridax Procumbens	10 ml	6	8	7	7

Table-2:- Acid Neutralization capacity of Plant extracts.

SN	Plant extract solutions	Volume of known Oxalic Acid (0.1 N) ml	Vol. NaOH ml	Conc. Of Plant Extracts	(N3-N4)
1	Curry Tree (Sweet Neem)	10	10	0.09	0.03
2	Azadirachta Indica (Neem Tree)	10	11	0.099	0.021
3	Betel	10	12	0.108	0.012
4	Mentha (Podhina)	10	8	0.072	0.048
5	Cymbopogon citrates (lemongrass)	10	10.5	0.0945	0.0255
6	Tridax Procumbens	10	7	0.063	0.057

Results and Discussion

Table -1 reveals information about the titration data of plant extracts and table-2 shown acid neutralizing capacity of various plants extracts. As above observation table the acid neutralizing capacity of Tridaxprocumbens plants is higher than other and the acid neutralizing capacity of menthe plant is less than other .Curry tree and azadirachta indica tree are plants are nearly similar acid neutralizing capacity. Normality of plants extract is nearly equal in curry tree and Azadirecta.

Conclusion:

In market various Antacids are available. But they have various synthetic   chemicals. They neutralized acidity but after some time due to regular used they will be suffer by various side effects. But during present work determined antacid properties of various plant extracts. In which Tridax Procumbens have good antacid property as compared to other plant extract. so in place of synthetic drugs we can use such type of plant extract that will be very good for human health.

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DETECTION OF ADULTERATION

Nishita Santoshi, Pallavi Mankar, Jaya Mane, Vaishnavi Bathe

Abstract:

Present study on "detection of food adulterants in chili powder, turmeric powder, sugar, butter, milk and jagerry using physical and chemical methods, which are essential for our daily life."In our country, food adulteration is encountered at the household level and food service establishments. Non-permitted colors are most common additives to foods. We study food adulterant comparatively using adulterant as well as pour sample. This study is attempted to bring in awareness to the public about important subject of food adulteration and various simple methods available to detect food adulteration.

Key ward:- Adulteration, physical and chemical methods.

Introduction

Adulteration was first investigated in 1820 by the German chemist Frederick Accum, who identified many toxic metal colorings in food and drink. His work antagonized food suppliers, and he was ultimately discredited by a scandal over his alleged mutilation of books of the Royal Institution library. Adulteration is an addition of another substance to a food item in order to increase the quantity of the food item in raw form or prepared form, which may result in the loss of actual quality of food items We are select the detection of food adulteration, because adulteration in food is often present in is most crude form as a prohibited substance are added partially. Adulteration is added in food for various reasons which include financial gain, carelessness, selling, hygiene processes, storing, and transportation. Therefore the consumers is either fooled or usually become victim of disease. In backward or countries seen food adulteration such a kind of adulteration is seen. It is essential for consumers to be aware of common adulterant and their effect on health. Market has high numbers of producers also food is imported in large amount.

Methodology:

All chemical used through this work are freshly prepared. And as per standard procedure prepared solution and standardised before used. Samples were collected form market as well as some form home. Carried out various tests to check adulterations in different daily life products. During this study analyzed o check artificial colour, Dust, Chalk powder or yellow soap stone powder, Metanil yellow, Artificial colour and brick powder, Soapstone, Rodamine B, Oil soluble coal tar, Washing soda, Vegetable oil, Vanaspati, Urea, Foreign resin, Sugar and so on.

A) Powder

Test

1) Artificial colour 2) Dust 3) Chalk powder or yellow soap stone powder

4) Metanil yellow

1) Artificial colour

Procedure

i. Add a one teaspoon of turmeric powder in a glass .

ii. Then add a glass of water.

iii. Natural turmeric powder leave light yellow colour.

iv. While it settling down.

v. Adult turmeric powder leave strong yellow colour.

Detection: The turmeric powder leave strong yellow colour, it is adulterant.

2) Dust

Procedure

i. Take a teaspoon of turmeric powder.

ii. Add the turmeric powder in a beaker. Then add the water in it.

iii. The dust will float at a surface of water.

iv. While the dust is settle down in the bottom.

Detection: The dust is settling down in a beak, it is adulterant.

3) Chalk powder or yellow soap stone colour

i. Take a small quantity of turmeric powder in a test tube.

ii. Add small quantity of water in a test tube.

iii. Then add few drops of concentrated Hydrochloric acid.

iv. Effervescence of bubbles indicates presence of chalk powder or yellow soap stone powder.

Detection: The bubbles are not form in a test tube, it is indicated chalk powder or yellow soap stone are not present, it is not adulterant.

4) Metanil yellow

Procedure

i. Take a teaspoon of turmeric powder in a test tube

ii. Add a few drop of concentrated hydrochloric acid in a test tube.

iii. Instant appearance of a pink colour which disappears

iv.   On dilution with water shows presence of turmeric.

v.   If the colour persists, metanil yellow.

Detection: The pink colour is disappears it indicates metanil yellow present, it is adulterant

B) Chilli Powder

1) Artificial colour and brick powder, 2) Dust. 3) Soapstone 4) Rodamine B 5) Oil soluble coal tar

1) Artificial colour and brick powder

Procedure

i.   Take a teaspoon of chilli powder in glass .

ii.   Then add glass of water and stir it.

iii.   A swirl of bright red colour indicates the presence of artificial colour.

iv.   While settling of sediment bottom of glass.

v.   lndicates the presence of brick powder.

Detection: The bright red colour appear and sediment settle down it indicates presence of artificial colour and brick powder, it is adulterant

2) Dust

Procedure

i.   Add a sample of chilli powder in a glass of water.

ii.   Stir it and the dust will float on the surface of water.

iii.   While chilli powder settles down at bottom.

Detection: The chilli powder settles down at bottom, it indicate presence of dust, it is adulterant.

3) Soapstone

Procedure

i.   Take a glass of water.

ii.   Add a teaspoon of chilli powder in it.

iii.   In case of residue feel soapy and smooth

iv.   Hence it is adulterant with soapstone.

Detection: The chilli powder is feeling soapy and smooth it indicates presence of soapstone, it is adulterant.

4) Rodamine B

Procedure

i. Take a 2gm of chilli powder in a test tube.

ii. Add 5ml of acetone in a test tube.

iii. The red colour is form means presence of rodamine B.

Detection: The red colour is form it indicates presence rodamine B , it is adulterant.

5) Oil soluble coal tar

i. Add 2g of chilli powder in a test tube.

ii. Then add few ml of other solvent.

iii. Ether layer is decanted.

iv. Then add 2ml of dilute Hydrochloric acid. Shake it.

v. Distinct pink colour to red colour.

vi. Lower acid layer it indicates the presence of oil soluble coal tar.

Detection: The pink colour is not appearing it is adulterant.

C) Jagerry

1) Chalk powder, 2) Metanil yellow colour   3)Washing soda

1) Chalk powder

Procedure

i. Dissolve a small piece of jaggery in a water.

ii. The chalk is settle down in a water.

iii. It indicates the presence of chalk powder in Jagerry.

Detection: The chalk powder is absent it indicates it is not adulterant.

2) Metanil yellow colour

Procedure

i. Take a small piece of Jagerry in a test tube.

ii. Add 3ml of alcohol in it and shake it.

iii. Add pour drops of Hydrochloric acid in it.

iv. It forms the pink colour means presence of metanil yellow colour.

Detection: The dark red brown colour is form it indicates presence of metanil yellow colour it is adulterant.

3) Washing soda

Procedure

i.   Take a small quantity of jaggery in a test tube.

ii.   add the few drops of concentrated Hydrochloric acid in it.

iii.   If the solution cause effervescence .

iv.   It indicates the presence of washing soda.

Detection: The solution is not effervescence it indicates absence of washing soda, it is not adulterant.

D) Butter

Test

1) Vegetable oil and 2) Vanaspati

1) Vegetable oil

Procedure

i.   Melt a small quantity of butter.

ii.   Pour it in a glass jar and placed in a refrigerator.

iii.   Till it solidified presence of separate layer of indicate vegetable oil present.

Detection: the layer is not separate so it is not adulterant.

2) Vanaspati

Procedure

i.   Take teaspoon of melted butter in a test tube.

ii.   Then add pinched of sugar in it.

iii.   Then close the container and shake it.

iv.   Let it stand for five minutes.

v.   If the red colour appear at the bottom of the test tube.

vi.   It indicates the presence of vanaspati.

Detection: The vanaspati is not present in a sample, it is not adulterant.

E) Sugar

1) Chalk powder

2) Urea

1) Chalk powder

Procedure

i. Take a 10g of sugar in a glass.

ii. Then add the glass of water in it.

iii. Dissolve the sugar in a water.

iv. Allow to it settling and chalk will settle down.

v. Indicates the presence of chalk powder.

Detection: The chalk powder is not setting down, it is not adulterant .

2) Urea

i. Take a some amount of sugar in a test tube.

ii. Then add some water and dissolve the sugar.

iii. It gives the smell of ammonia it indicates the presence of urea.

Detection: The smell of ammonia is not produce or indicates it is not adulterant.

F) Asafoetida

Test

1) Soapstone   2) Foreign resin

1) Soap stone

Procedure

i. Shake the little portion of sample with water and allow to settle.

ii. Soap stone are settled down at bottom.

Detection: The soap stone are settled down at the bottom so it is adulterant.

2) Foreign resin

Procedure

i. Take a asafoetida in a spoon.

ii. If the sample burn like camphor, it indicate sample pure.

Detection: This is a pure sample it is not adulterant

G) Honey

1) Sugar   2) Fake or real honey

1) Sugar

Procedure

i.   Take a cotton wick dipped in a pure honey and light with match stick.

ii.   Pure honey burn is not adulterant and the presence of water will not allow the honey burn of it does it will produce sound cracking.

Detection: The honey is burn it indicates the sugar is absent, it is not adulterant.

2) Fake or real honey

Procedure

i.   Take a teaspoon of honey in a beaker. Add water in it.

ii.   The honey is easily dissolved it means fake honey.

Detection: The honey is easily dissolved it mean it is adulterant.

H) Milk

1) Water 2) Urea

1) Water

Procedure

Put a drop of milk on a polished slanting surface

Detection:- Drop of milk flow easily it means is pure milk.

3)   Urea

Procedure

i.   Take a 5ml of milk in a test tube . Then add half teaspoon of soya bean or arhar powder.

ii.   Mix it by shaking a test tube after 5min dip the blue litmus paper in it

iii.   Remove the paper after half minute . A change in colour red to blue it indicates milk is adulterant.

Detection: the colour is not change red to blue in the sample urea is not present, it is not adulterant.

Table-1:- Samples, adulteration and their test.

Sr .No.	Sample Name	Test	Adulterant	Pure sample
1	Turmaric powder	Artificial colour	Strong yellow colour appear	Light yellow colour is appear.
		Dust	Dust particles is settle down at the bottom	Dust particles is does settle down at the bottom
		3)Chalk powder and yellow soap stone colour	Effervescence of bubbles	
		4)Metanil yellow	Pink colour is disappear	Pink colour is appear
2	Chilli powder	1)Artificial colour and brick powder	Bright red colour appear and sediment setuldown at the bottom.	
		2)Dust	Dust particles flow at the surface of water	Dust particles does not flow at the surface of water
		3)Soapstone	Feel soapy and smooth	does not fell soapy and smooth
		3)Rodamine B	Orange red colour is form	
		4)Oil soluble coal tar	Layer of acid is not appear	Layer of acid is not appear.
3	Jagerry	1)Chalk pawder	Chalk pawder is settle down at the bottom .	
		2)Metanil yellow colour	Pink colour is appear	
		3)Washing soda	It does not cause effervescence	
4	Butter	1)Vegetable oil	Layer is separate.	Layer is not separate
		2)Vanaspati	Red colour appear at the bottom	Red colour is not appear at the bottom
5	Sugar	1)Chalk powder	Chalk powder oil deos not settle down at the bottom.	

Result and discussion:

Table-2- Determination of Food adulteration.

SN	Sample taken	Adulterant	
1	Turmeric powder	Present	---
2	Chilli powder	Present	---
3	Jaggery	Present	---
4	Butter	---	Absent
5	Sugar	Present	---
6	Asafoetida	---	Absent
7	Honey	---	Absent
8	Milk	Present	----

Food adulteration indicates the intentional, fraudulent addition of extraneous, improper or cheaper ingredients to product or the dilution or removal or some valuable Ingredients in order to increase profit. If we are working on this project, we will get some positive results but we will get some negative results. We use a chemical in the sample to detect whether the sample is mixed If there is any color change in the sample, the dust will settle down and the powder will settle down. Artificial color, yellow soap stone, metanil yellow, rodamine b, oil soluble coal tar, vanspati, urea washing soda forein resin, brick powder are among the most common samples.

Conclusion:

During this study adulteration was found in Turmeric powder, chilli powder, Jaggery, Sugar and milk samples while Butter, Asafoetida and Honey samples were found without adulteration. Adulterated food is not only consists of physical adulterant particles other than food, but it also hosts pathogens which can cause harmful disease. Adulterant food causes both mental and physical disorders along with malnutrition hence we avoid eating such a food also the government need to necessary action against the companies and individuals who for sake of their own profit are manufacturing and selling adulterant products to consumers.

Acknowledgement

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WATER HARDNESS AND KIDNEY STONE PATIENTS FROM SHEGAON REGION

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Abstract

Water with high concentration of minerals is hard water, water is essential for life. But water with very high degree of hardness is harmful to health. 12 water samples were collected from different residential areas of Shegaonregionand differentiate into 1) Tap water,2) can water, 3) Package water was collected. Hardness of water can be determined by EDTA titration method. Out of all 12 samples tested 1 sample was slightly hard, 4 samples were hard water and 7 sampleswere soft. So public should be educated about the hardness and effect. Extreme degree of hardness is dangerous to health.

Key words: - EDTA titration method, Hardness, Shegaon.

Introduction:-

Hard water is water that has high mineral content hard water high concentration of calcium, magnesium and iron ions. These ions are called as hard eningions. In low concentration of these ions are not considered harmful for drinking purpose, but when they are present in higher concentration it becomes harmful to our body. There are so many harmful effects of hard water like kidney stone, skin irritation, rashes, pimples, dryness etc.

1) Temporary hardness:- Temporary hardness is caused by combination of calcium and bicarbon ateionsin the water. It can be removed by boiling the water.

2) Permanent hardness:- Permanent hardness is hardness that cannot be removed by boiling. It is usually caused by the presence of calcium and magnesium sulphates and orchlorides which becomes more soluble as the temperature rise. Hard water causes which are the left-over mineral deposits that are formed after the hardwater had evaporated. Calcium and Magnesium forms a complex of wine red colour with Eriochrome black T indicate oratph10 .The EDTA has strong er affinity toward aluminum and magnesium therefore by addition of EDTA the former complex es is broken-down and new complex of blue colour is formed. Different researcher carried out work for hardness and their impact of human health1-10. Bearing this all things in mind we found very few researchers paid their attention toward investigation of water hardness by EDTA titrating method for samples belonging to Shegaon regions. Therefore designed this research scheme to water hardness and kidney stone patients from shegaon region.

Methodology:-

Collection of water samples:- The water samples were collected from different areas of shegaon like Rokdiya Nagar, Amrapali Nagar, etc as well as we taken the Can water and packaged water to test hardness. Preparation of solution:- For the preparation of EDTA we used 0.1 M. In the experiment, EDTA was first made and then standardized. This were done by preparing a calcium chloride solution. In the reaction with the EDTA, calcium carbonate is converted to calcium chloride. Ammonia-ammonium chloride will also be prepared to be used as a buffer in the solution. The professor prepared the Erichrome black T to be used as an indicator. This indicator was cause the solution to be red at the before the titration and then at the endpoint, the solution l turn blue. Make sure it is blue and not purple. After the standardization of EDTA, the calcium content in the water sample were be found.

The effects of hardness of water on kidney:

Most water sources Nusa Tenggara Timur contain higher concentration of calcium and magnesium ions, which is known as hardness of water. Long- term consumption of hard water can cause kidney dysfunction, which may lead to the diseases such as diabetes, cerebro vascular disease and others. Therefore, understanding the effects of hardness of water on kidney function is of importance. The results suggest that better water water treatments are required to reduce the concentration of magnesium and calcium in the water. This aid in minimizing the probability of humans to attracted kidney dysfunction.

Kidney stone patients in shegaon region :

Jivan Jyoti Hospital :

Months	Male	Female	Total Patients
December	40	30	70
January	27	35	62
February	50	46	96
March	67	70	137
April	34	47	81
May	46	71	117

Sangivini Hospital :

Months	Male	Female	Total Patients
December	4	5	9
January	2	4	6
February	1	4	5
March	3	5	8
April	3	4	7
May	6	4	10

Rakhumai Hospital :

Months	Male	Female	Total Patients
December	63	87	150
January	55	35	90
February	40	65	105
March	29	56	85
April	52	63	115
May	37	20	57

Saibai Hospital :

Months	Male	Female	Total Patients
December	63	74	137
January	65	91	156
February	34	50	84
March	50	45	95
April	45	47	92
May	26	25	51

Table No.-2:- A general classification of Hard water is:--

Water Hardness Scale		
mg/L & ppm as $CaCO_3$	dH	Classification
0 - 75	0 - 4	Soft
75 -150	4 - 8.5	Slightly Hard
150 - 300	8.5 - 17	Hard
300+	17+	Very Hard

Result and discussion:-

Determination of water hardness Formula:- ml of EDTA required ×1000 / ml of sample used

TableNo.-2:

SN	Water samples side	Water sample coad
1	Packaged water samples	PWS
2	Can water samples	CWS
3	Tap water samples	TWS

Table No.-3:- Hardness of water

Sample code	Sample of volume	MeanVolume EDTA	Hardness of water
PWS1	50 ml	2.5	50 mg/l
PWS2	50ml	1.4	28 mg/l
PWS3	50ml	1.9	38 mg/l
CWS1	50ml	1.3	28 mg/l
CWS2	50ml	2.1	42 mg/l
CWS3	50ml	1.6	32 mg/l
TWS1	50ml	11.1	224 mg/l
TWS2	50ml	10.5	210 mg/l
TWS3	50ml	11.7	234 mg/l
TWS4	50ml	10.5	210 mg /l
TWS5	50ml	6.0	120 mg /l
TWS6	**50ml**	**3.0**	**60mg/l**

Conclusion:-

The present study revealed that extreme degree of hardness were found only in Tap water. Most of the peoples they consume tap water regularly they are in more risk zone. TWS1, TWS2, TWS3 and TWS4 consumers are in mostly close to high hardness of water. They should have to avoid used of such hard water for drinking purpose.

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वाचाल तर वाचाल

कु. अनामिका श्रीनाथ

सार :– वाचनसंस्कृती समृद्धहोण्यासाठी विद्यार्थ्यांनाकेलेले मार्गदर्शन त्यांचे शंका निरसन. तज्ञ व्यक्तीचे त्यावरील मत असल्याने ज्ञानाची कक्षा उंचावते. जगातज्ञानइतकेपवित्र काहीही नाही.हे पवित्र ज्ञान वाचकापर्यंत पोहोचण्यासाठी आज समाजामध्ये जनजागृती करणे गरजेचे आहे . संस्कृतीचा होत असलेला ऱ्हास लक्षात घेता आज महाविद्यालयीन विद्यार्थी कोणत्या पद्धतीने वाचन करत आहे ,त्याच्या काय समस्या आहेत .या सर्व बाबीचा अभ्यासकरून ते मांडण्याचा प्रयत्न या लेखामध्ये केलेला आहे.

संज्ञा :– विद्यार्थी, वाचनसंस्कृती

प्रस्तावना :–

पुस्तक सांगतात गोष्टवाहून गेलेल्या दिवसांची युगायुगाची विश्वची, माणसांची, कालची आजची आणि उद्याची एका–एका क्षणाची झाड हिरव्या पानांनी सळसकार अश्या सुरुवातीची, निष्पर्ण फांदीच्या एकाकीपणच्या सारख्यादु:खाची, वाऱ्यावर दुलानाऱ्या रंगीत फुलांची, युद्धात आई–बाप मेलेल्या मुलांची, जिंकलेल्या रणाची हरवलेल्या मनाची, प्रेमाची, व्याषची, श्वासाची हि पुस्तक सांगतात गोष्टी. मग ऐकणारा ना गोष्टी पुस्तकांनी सांगितलेल्या पुस्तक काही सांगू इच्छितात.

तुमच्या सावलीत रंगू इच्छितात .
पुस्तकात पक्ष्यांची चोच बोलते.
पुस्तकात हिरवागार रान बोलते.
पुस्तकात असतो झऱ्याच्या पाण्याचा अवखळपणा.
पुस्तकात दिसतात पऱ्या बाळगतांना.
पुस्तकातअसतो क्षेपणास्त्रचा विध्वंस काळ्या कृत्यात बुडलेल्या महाभारतात कंस.
पुस्तकाल्या शब्दांना करुणेची झाक आहे.
सर्व संत निरामयी विज्ञानाची हक आहे.
पुस्तक म्हणजे वसुधेव कुटुंबकाम.
आयुष्यपाथारचा नाय कदम.
मग येणार नंतुम्ही त्या रस्त्यावर चालण्यासाठी.
छेहो ! वाट मुळीच अवघड नाही. रस्त्यावरून चालताना आपण दुकानावर च्या पाट्या वाचतो. तेवढ्या सहज पुस्तक वाचायची बस ! अहो वाचायला तर लागा म्हणजे पोहोचाल हव्या त्या ठिकाणी पुस्तक काही सांगू इच्छितात तुमच्यासावलीत रंगू इच्छितात.

– दासू वैद्य.

वाड:मयालोकन

१)   राठीजुगलकिशोर (२००३):– वाचाल तर टिकालया पुस्तकात जुगलकिशोरराठी यांनी कोणत्याही क्षेत्रातील व्यवस्था, अवस्था कुव्यवस्था संवेदनशील मनाला अस्वस्थ करून टाकत असते. चांगल्यागोष्टी आनंदी निर्माण करतात तर वाईट गोष्टीमुळे दुःख वकधीकधीक्रोध हि निर्माण होऊ शकतो आणित्या मन:स्थितीत आले की मनातील विचार पुस्तकरूपानेकाढून वाचणाऱ्यांनाकामी यावे. व पुढच्या ठेच ' मागचा शहाणा 'तसेच सामाजिक राजकीय शैक्षणिक, कौठंबिक वव्यावसायिक क्षेत्रातून श्री राठीजीना आलेली अनुभूती, आजूबाजूच्याझपाटूनहोणारे परिवर्तन या पुस्तकाच्या वाचाण्यातून कशा प्रकारे होईल यासर्वगोष्टीचाउलेख या पुस्तकात लेखकांनी केला आहे.

२)   गोंधळी सुनील:– वाचाल तर वाचाल या कविते मध्येकवींनी आयुष्याच्या खलळतर प्रवासात जीवनात मोलाचा सल्ला देण्या

पुस्तकाची सदैव प्रत्येकाच्या आयुष्यात कशाप्रकारे आवश्यकता आहे हे स्पष्ट केले

४) **अब्राम्हण लिंकन:–** शेवटचा श्वास हा मला पुस्तकासोबतघ्यायला आवडेल.

५) **जॉर्ज आर. आर. मार्टिंन:–** तलावरील जशी धार लावावी लागेल तशीच बुद्धीला पुस्तक वाचून धार लागेल.

६) **प्लेटो:–** वाचनकरण हे खूप सारे जीवन जगण्यासारखे आहे.

७) **मार्कट्वेन :–** उत्तमपुस्तक, चांगले मित्र आणि शुद्ध अंत : करण हेच आदर्श जीवन आहे.

व्याप्ती :– श्री.ज्ञानेश्वर म. बुरुंगले कला व विज्ञान महाविद्यालयातील विज्ञान व कला शाखेतील विद्यार्थींची निवड करण्यात आली.

संशोधन पद्धती :– श्री. म. बुरुंगले कला व विज्ञान महाविद्यालयातील विद्यार्थ्यांच्या प्रत्यक्ष मुलाखत घेण्यात निरीक्षण या दिन पद्धतीचा वापर करण्यात आला .

माहिती संकलन:– श्री. ज्ञानेश्वर मबुरुंगले कला व विज्ञान महाविद्यालयातील दोन्ही शाखेमधील विद्यार्थींशी वाचन संस्कृती या विषयावर प्रत्यक्षातचर्चाघडवून आणली. संवादाच्या माध्यमातून महाविद्यालायातील विद्यार्थींचे वाचन संस्कृती विकास या विषयावर चर्चाकरून.व त्याची वाचन संस्कृती विषयी मते जाणून घेतली.

माहितीचेविश्लेषण:– महाविद्यालयीन स्तरावर वाचन संस्कृतीच्या विकासाबद्दल चर्चा केल्या गेल्या. त्या संवादाच्या माध्यमातून विद्यार्थिनी वाचनाच्या विविध पद्धती सांगितल्या. विद्यार्थिनी आजच्यातंत्रज्ञानाच्या युगातवापरल्याजाणाऱ्या ऑडिओ, ईळवशे ,ई–बुक्स, ई –वर्तमानपत्र या साहित्याविषयी त्यांचेमतअसेकी. ई– ऑडिओ बुक्स सहजच एकूण आत्मसात केल्या जातात व ई–बुक्स कुठेही कधी हि वाचण्यास सोयीचे ठरतात. ६०% विध्यार्थिनी त्यांचे असे मत नोदिविले.मात्र या उलट ५०%विद्यार्थ्यांना प्रत्यक्ष ग्रंथायालात जाऊन पुस्तके वाचून अधिक सोयीचे वाटते. ज्यांचे पुस्तके वाचून अनेक फायदे ते सांगतात. भाषाशैलीचा विकास घडून येतो. अशा विविध प्रकारे फायदे ग्रंथालयात जाण्याचे फायदे विद्यार्थिनी सांगितले आज सोशल मिडीयाकडे युवापिढीचामोठ्या प्रमाणातकल दिसून येतो .ज्यामुळे त्यांच्यात व पुस्तकामध्ये मोठ्या प्रमाणात दरी निर्माण होताना दिसत आहे . युवापिढीचे पुस्तकाकडे होणारे दुर्लक्ष वाचनसंस्कृतीचा ऱ्हासास कारणीभूत ठरूशकते.

निष्कर्ष:– या संशोधनावरूनअसा निष्कर्ष निघतो की , विद्यार्थीमध्ये ज्ञानाचा अभाव मोठ्या प्रमाणात आहेसध्यास्तिथीचा अभ्यास करत असताना असे दिसून येते की, ई–साहित्याचा वापर सर्वात जास्तप्रमाणात होत आहे , मोबाईल स्क्रीनद्वारे उदभवनाऱ्या समस्या या सर्व बाबींचा विचार करता असे दिसून येते की, वाचन संस्कृतीचा होत ऱ्हास थांबविण्यासाठी प्रत्येक नागरिकाने आपल्या घरामधून सुरवात करून ,समाजामध्ये जनजागृती करणे गरजेचे आहे.

संदर्भ :–

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