SAMPLE PAPER

ADVANCED TECHNIQUE FOR SOIL MOISTURE CONTENT BASED AUTOMATIC MOTOR PUMPING FOR AGRICULTURAL LAND PURPOSE

A.Anand, R.Ramesh, M.Nandhu and N.Ram
Department of chemistry, Anna university, Chennai – 641 049

Abstract

The project mainly aims in designing a system which is capable of checking the soil moisture content and automatically pumps the water into the field for agriculture purpose using solar energy. In irrigation process the most important parameter of monitoring is soil. So, the soil moisture sensor is used to find whether the soil is wet or dry. The pumping motor will pump the water only when the field is dry. The sensor sends the status of the soil to the microcontroller 8051and based on that the controller will display the status in the LCD and switch ON or OFF the submersible pump.

Introduction

Automatic irrigation system is very important in the field of agriculture. It is used to maintain the level of water or moisture in the soil where crops are planted. Moisture sensor is interfaced with 8051microcontroller. The sensor sends the status of the soil to the microcontroller and if the soil is dry the micro controller will automatically switch ON the solar powered water pump system and GSM modem is used to inform the owner.

Motivation

The motivation for this project came from the countries where economy is based on agriculture and the climatic conditions let to lack of rains and scarcity of water. If the farm land has the water pump, manual invention by farmers is required to turn the pump on\off whenever needed.

Materials and Methods

The isolated fungal culture which was observed to produce coloured pigments on the cultured agar plate was selected and subcultured on the PDA plates. The plates were incubated at 30°C for 14 days. The fungal endophytes were mass cultivated on potato dextrose broth by placing actively growing pure culture in 1000ml Erlenmeyer flasks containing 200ml of the medium. The flasks were incubated at 37ºC for 7 days in shaker incubator at 150 rpm.

Characterization

The black pigment and pink-red pigment extracted from *Curvularia protuberata* and *Fusarium oxysporum* showed maximum absorbance of 260 and 270 nm respectively in the range

of 800 - 200 nm Wavelength UV/Vis bandwidth at 1.5 nm and received Absorbance at (Max-Min) at scan speed 400 nm/min

Working

Soil moisture sensor is interfaced with the controller to sense the moisture content, if the soil is dry the microcontroller automatically switches ON the submersible pump to drip water into the field and send message to the owner through GSM modem .

Result and Discussion

12V Solar power is used as power supply unit, where energy is absorbed from the sun through the panel and solar charge controller is used to charge the rechargeable batteries, these batteries provide power for the system operation. The function of the inverter is that it converts the battery's voltage to AC voltage to activate the pump. Reduces the human intervention, Eco-friendly, Optimum level of water is used and Increasing productivity.

Conclusion

The Soil moisture content based irrigation system was implemented. Salient features of the system are temperature and water usage monitoring. User can easily have predefined the levels of the moisture and is regularly update the information to the owner. This project can also be implemented through IoT based technique.

Guide: **Mr. S.Sankar**, Associate Professor, Department of chemistry, Anna university, Chennai – 641 049
