***ISOLATION AND CHARACTERIZATION OF COW DUNG MICROFLORA AND ITS EFFECTIVENESS OF Citrus Limon BIO-ENZYME***

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**ABSTRACT:**

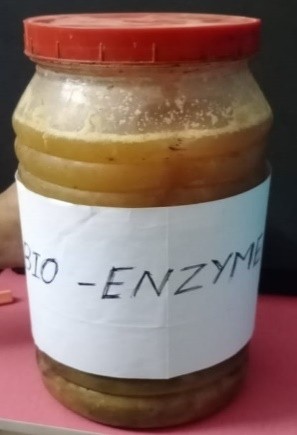
Cow manure act as a good fertilizer. It contain more nutrients beneficial microbes. It supports growth useful microbes. When it was mixed with soil it improve the soil and maintain moisture. The present studies carried out isolation of cow dung microflora and its antimicrobial properties against bio enzyme ***citrus limon.*** The bacterium like ***shigella*** species ***23mm*** inhibition and proteous species17 mm inhibition against ***citrus limon***

**INTRODUCTION**

Cow dung more contain more beneficial microbes and various Nutrional components vitamins, cellulose, oxygen, carbon, mucus, potassium, nitrogen, it is being used in Agricultural and religious purpose.

A micro organisms such as ***bacilli species******coccus .*** ***Muhamed and Amusa 2003****.* According to ***Ware et al* ., 1988** the gut of cow contains ***Lactobacillus plantarum****,* ***Lactobacillus casei, lactobacillus acidophilus****, B.*A ***Saccharomyces corevisiae*** act as probiotic ***Ware Funssin D R, Read PL et AL.,( 1988 )*** Generally old cow dung has more soil microbes and *Actinomices* ***Muhamed and Amusha ( 2003 ).***There are many Proofs to confirm that. ***Nene YL . ( 2001 )***Which might be due to secretion of antimicrobial metabolites by cow dung and cow urine as antifungal and anti bacterial properties *.****Sharma and Singh, 2015 )***Antimicrobial drugs has great effect on infection diasease caused by resistant microbes *1929* ***( Fleming et.al., 1929 ) ( Kardosand and Demain, 2011.,( Kaarla et al., 2015).*** ***Naiem et al .,2006 ) ( Sikarwar and Batra, 2011 ).******( Abo – State et al.,2012 ) A*** Cow dung rich in *Enterobacter aerogenes, Escherichia coil, Klebsilla oxytoca, Klebsilla pneumonia Morgarella morganii, Pasteurella species, and Pseudomonas species, Nocardia, Mucor species and Rhizopus species* ***. ( Nene 1999****)(* ***Sawast et al.,., 2007 ) . ( Randhawa and Kullar, 2011 )***Cow Dung has been used as a antifungal agent.***( Muhamed and Amusha 2003) ( Dhama et al., 2005 ). (Joseph and Sankerganesh 2001) ( DHAMAKA et al., 2013 )***cow dung shows antimicrobial properties against against *Candida species, Escherichia coli, pseudomonas species and staphylococcus aureus by revealing the antimicrobial property* ***( Daviud odemi et al., 2007 )***

Cow dung as booster in the decomposition of organic material***(Adegunloye et al., 2007 ).*** Cow dung act as organic Fertilizer, ***(V. Muralikrishna et al., 2017*** ***( B. Sharma et al.,2019)***



***Citrus limon* HerbalPlant** **Bio Enzyme *Citruslimon.,***

**Bio Chemical Charecteristic Of *Shigella Species*.,**



**a) Shigella Sp, Hekteon Entric Agar**

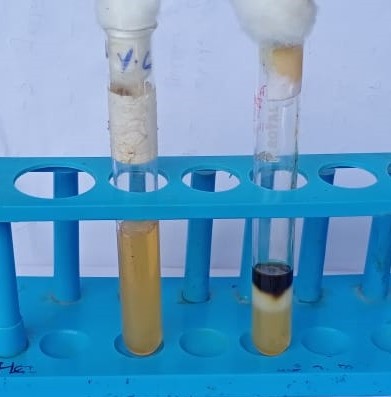
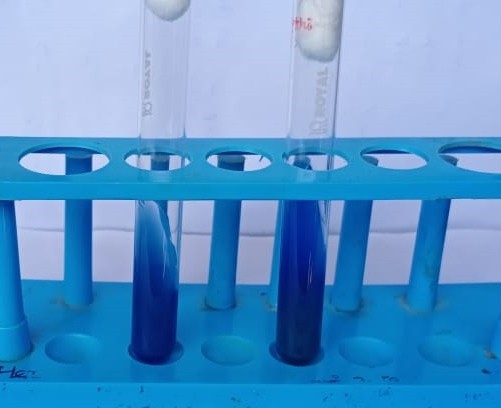
**b) MR -Positive b) Indole Negative**



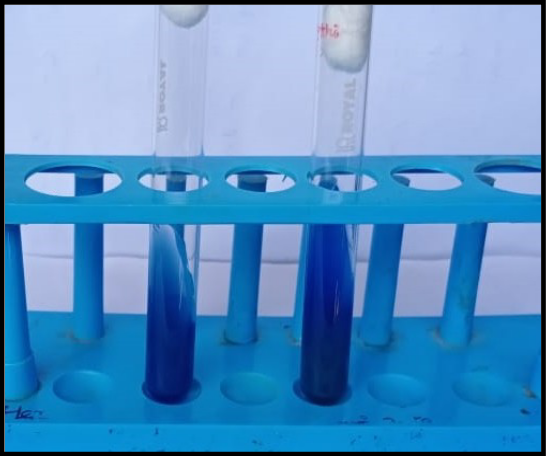
**b )Urease Test-Positive  *a) Klebisella Pneumoniae Species***



**b) Indole NegativeTest Simmon’s Citrate Test- Positive**



**Biochemical characters of *Proteus species.***

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# Simmon’s Citrate Test - Positive

**Table: 4 Testing Antimicrobial Sensitivity of Isolates Against Bio – Enzyme (*Citrus Limon*)**

| **S.NO** | **TESTED ORGANISM** | **ZONE OF INHIBITION** |
| --- | --- | --- |
| 1. | Klebsiella species | 14mm |
| 2. | Proteus species | 15mm |
| 3. | Shigella species | 17mm |

**Antimicrobial activity of isolated microbes**



***Klebisella Pneumoniae* Disc diffusion method- *Shigella Species.,***



Disc diffusion method- *Proteus* species.,



**RESULT AND DISSCUSSION**

In present study, the of cow Dung samples collected from Thirukaliththattai locates at Kumbakonam, Thanjavur District, Tamil Nadu. Samples carried out laboratory for further Microbial load investigation. The microbes like ***Klebsiella* species*, shigella*** ***species***, and *Proteu*s species isolated. Testing of antimicrobial activity of isolates with *Citrus limon*

***Klebsiella species*** 14 mm in zone of inhibition in muller hinton Agar medium. *Proteus* species

15 mm in zone of inhibition, *Shigella* species 17 mm zone of inhibition observed.this study concluded Citrus peels bio enzyme is a antimicrobial agent. **(*sawantetal., 2007).***Cowdung has been used from ancient times in Ayurvedic Treatments, used for biogas production and increasing crop productivity **Desriac F, *et al.,* (2013).** cow dung also consist of beneficial microflora, yeast as reported by **(Muhammad and Amusa , 2003).** (**Swain,M.R. and Ray,R.C,2006),** Cellulase producing bacteria **(Bai,S.etal.,2015)Hong-li, Z. *et al*.,2015).** Enzymatic activities **(Vijayaraghavan,P.etal.,2016).** Methanogenic Bacteria( **Pradha,P.andGireeshbabu, K. 2012)** , Antibiotic resistant strains **(David,O.M. and Odeyema, A.T, 2007 ) ,Antibiotic susceptibility (Teo, K.C and Teoh, S.M.2011)** and Ammonia producing bacteria are well reported. (**Radha,T. K and Rao, D.L.N. 2014**). Patel, ***et al.,* 2015.** Phytochemicalanalysis was performed by each cow dung extract present the flavonoids,Glycosides, tannins, saponins and phenols. Various literature reports **(Li *et al.,* 2015; Sagar *et al.,*2018)** describe fruit peels of Mango **(*Mangifera indica*),** Pomegranate **(*Punica granatum***), Apple **(*Malus pumila***), Mosambi **(*Citrus******limetta*),**

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