H.K.E. Society's

A V PATIL ARTS SCIENCE & COMMERCE COLLEGE ALAND"

A

PROJECT REPORT ON

"Ethnobotanical Survey And Phytochmical Analysis On Woman Health Problem"

2021-22

Submitted by

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Under the guidance of

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CERTIFICATE OF COMPLETION

This is to certify that the Project Report On **"Ethnobotanical Survey And Phytochmical Analysis On Woman Health Problem"**

at HKES'S A V PATIL ARTS SCIENCE & COMMERCE COLLEGE ALAND " is based on the project carried out under the guidance of ***Dr. Rajshekhar babnoor*** Assistant Professor and is submitted to the Department of Botany H.K.E. Society's A. V. Patil Arts, Science & Commerce College Aland.

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ACKNOWLEDGEMENTS

It is my pleasure to express my sincere gratitude to all those who have given guidance and support in completion of this dissertation report. I wish to express my sincere thanks to *Dr. Rajshekhar babnoore* Assistant Professor & Head of Department of Botany for his encouragement which helped in accomplishment of this study.

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WOMEN'S HEALTH PROBLEMS

INTRODUCTION

Gynaecology or gynecology is the medical practice dealing with the health of the female reproductive system (uterus ,vagina and ovaries) .Ethno-gynecology is emerging as a new branch which deals with the treatment of ailments among tribal women ,For example ,abortion ,menstrual trouble ,menopause syndrome ,morning sickness ,leucorrhea ,anti-fertility ,delivery problems etc .The women's do not go to the doctor but depend on herbal treatment suggested by old women or experienced men of the village.

Women's health and well being are profoundly affected by hormone level which can vary with age .Hormone balance is crucial to stabilizing women's physiology because hormone control vital biological functions. The two main sex hormones are estrogen and progesterone . The estrogen is synthesized in ovaries and adipose tissue and responsible for secondary sexual characters and cell growth . Progesterone balances estrogen's proliferative effect.

Ethno-medicinal studies are significant for discovery of new drugs from reported indogenious medicinal plants. Medicinal plants have yielded drugs with therapeutic values. This will focus on women's health botanicals as natural alternatives to traditional pharmaceutical therapies used by premenopausal , menopausal, and post menopausalwomens.

INTODUTION OF PHYTOCHEMICALS

Phytochemicals (greek word Phyto meaning plant) are biologically active , naturally occurring chemical compounds found in plants , which provide health benefits for humans further than those

attributed to macronutrients and micronutrients (Mamtasaxena et al ,2013). They protect plants from disease and damage and contribiute to the plant's colour , aroma and flavor. In general , the plant chemicals that protect plant cells from environmental hazards such as pollution , stress, drought , UV exposure and pathogenic attack are called as phytochemicals.

Phytochemicals accumulate in different part of plants such as in roots ,stem, leaves , flowers ,fruits ,and seeds .Many phytochemicals particularly the pigment molecules are effect concentrated in the outer layer of various plant tissue . These compounds are known as secondary plant metabolites and have biological properties such as ant-oxidant activity , stimulation of the immune system , decrease of platelet aggregation and modulation of hormone metabolism and anticancer property . Some of the secondary metabolites are alkaloida ,phenos, flavonoids , tannins, terpenoids, glycosides, and saponins etc .

OBJECTIVES

1-The objectives of ethnobotanical survey on the medicinal plants for curing women's health problems

2-To evaluate the phytochemical analysis of selected plants from ethnobotanical survey.

INTRODUCTION OF WOMEN;S HEALTH PROBLEM

Women have their own health issues .which deserve special consideration . The present research study is made on the health problems of women . Women experience unique health issues and conditions .from pregnancy and menopause to gynaecological conditions , such as uterine fibroids and pelvic floor disorders .It is important that every women has

access to knowledge related to the spectrum of women's health issues , not only about her reproductive system but about all aspect of her body . Generally for women's health ,age ,is only one factor of hormonal health, diet ,environment and lifestyle habits also play a major role in how the hormones behave throughout life . The health topics listed below effect women primarily or more severly because women's health is so broad ,such Gynaecological health and disorders affecting women include menstruation and menstrual irregularities ,urinary tract ,health ,including urinary incontinence and pelvic floor disorders and such disorders as bacterial vaginosis , vaginitis ,uterine fibroids and vulvodynia.

Pregnancy issues include preconception care and parental care ,pregnancy loss (miscarriage and still birth) preterm labor and premature birth sudden infant death syndrome (SID'S) , breast feeding and birth defects .Disorders related to infertinity include uterine fibroids polycystic ovary syndrome , endometriosis and primary ovarian insufficiency.

Issues related to women's overall health and wellness include violence against women , women with disabilities and their unique challenges osteoporosis and bone health and menopause.

TYPES OF WOMEN HEALTH PROBLEMS AND ITS CAUSE

1) MENSTRUAL CRAMPS (dysmenorrhea)

Menstrual cramps ,dull throbbing , annoying pain in the lower abdomen ,pain radiates to the lower back and thighs ,severe pain ,uncommon sign and symptoms, nausea and vomiting, loose stools ,sweating , dizziness .It is having two types

- Primary dysmenorrhea
- Secondary dysmenorrhea

1)CAUSES OF PRIMARY DYSMENORRHEA

It is caused by excessive level of prostaglandin , the pains results from release of these hormones when the lining (endometrium) is sloughing off during menstrual period .This leads to uterus contract and decreased blood flow to uterus.

2)CAUSES OF SECONDARY DYSMENORRHEA

It is caused by a number of conditions including Fibroids-benign tumors that develop within the uterine wall or attached to it .

Adenomyosis –tissue that leaves the uterus begins to grow within its muscular walls.

Primary dysmennorhea-involves no physical abnormality and begins within three years after menarche .

Secondary dysmennorhea involves an underlying physical cause endometriosis, uterine fibroids ,pelvic inflammatory disease(PID), use of an intra uterine device (IUD),cramps disappear after pregnancy .

PMDD (premenstrual dysphoric disorder) is a severe form of PMS with severe depression , feelings of hopelessness , anger , anxiety , low self-esteem ,difficulty in concentrating irritability and tension ,joint or muscle pain and headache .

CAUSES-

cyclic changes in hormones because signs and symptoms of PMS change with hormonal fluctuations and also disappear with pregnancy and menopause ,chemical changes in the brain ,secrotonin plays a crucial role in mood states, low levels of vitamins and minerals.

6) MENOPAUSE

The end of female menstruation and fertility .This change can begin as early as 35 age or as late as 59.It is permanent cessation of menses ,termination of the menstrual life .It is a natural biological process not a medical illness associated with hormonal , physical and psychosocial changes in life .It is not the end of youth or sexuality.

CAUSES

It begins naturally when ovaries start maturing less estrogen and progesterone . During reproductive years ,these hormones regulate monthly cycles of ovulation and menstruation .Eventually menstrual periods stop ,and can no longer become pregnant.

7)INFERTILITY

Deminished or absent ability to produce offspring ,infertility also known as subfertility is the inability to conceive a child within one year .It may be due to single cause in either patient or partner or a combination of factors that may prevent pregnancy from occurring or continuing ,it is differ from sterility.

2)DYSFUNCTIONAL UTERINE BLEEDING (PUB)

Abnormal uterine bleeding not due to organic gynaecologicaldisease ,imbalance in cyclical sex hormones production,irregularmensr=trualcycles,excessive or prolonged bleeding.

CAUSES

Pregnancy is a most common cause polyps or fibroids in the uterus can also cause bleeding ,hormone imbalance, thyroid problem ,infection of cervix cancer of uterus can cause abnormal uterine bleeding.

3)AMENORRHEA (absence of menstruation)

CAUSES

Pathological cause are disease of hypothalamus ,pituitary ,thyroid, adrenalglands ,ovarian disorder,congenital disorders of genital organs and chromosomal abnormalities .

''Anorexia Nervosa'' seen in young emotionally unstable girls and also in over weight teenagers who go in crash diet.

4)MENORRHAGIA (heavy bleeding)

CAUSES

Hormonal imbalance ,fibroids, polyps, endometrious, neoplasia,blood clotting disorders.

5) Premenstrual Syndrome (PMS)

Mood swings tender breast , food cravings , fatigue ,irritability , depression etc

The plants involved in women's health problem

1)***Abitulon indicum***

CLASSIFICATION

Kingdom – Plantae

Class-Magnoliopsida

order-Malvales

Genus-*Abitulon*

Species-*A.indium*

DESCRIPTION

It is perennial ,softytomentose, upto 3m in height . Stem round frequently tinged with purple .Leaves ovate to or orbicular cordate,1.9 to 2.5cm long. Flowers solitary on jointed peduncles ,orange to yellow or yellow capsules hispid ,hardly larger, thin calyx awns erect ,seeds 3-5, reniform ,black or dark brown.

HABITAT

Found in sub-Himalayan tract and hills upto 1,200m and in hotter parts of India.

PART USED-

seed, leaves ,bark and root.

2)***Annona squamosa***

Classification

Kingdom-Plantae

Class- Magnoliopsida

Oder – Magnoliopsida

Family - Annonaceae

Genus – *Annona*

Species – *A. squamosal*

CAUSES

The human reproductive process is complex .To accomplish a pregnancy , the intricate processes of ovulation and fertilization need to work right .For attempting pregnancy something goes wrong in one or both of these complex processes and causes infertility.

8) BREAST CANCER

It is a type of cancer that forms in the cells of the breast .After skin cancer ,breast cancer is the most common diagnosed in women .It occur in both men and women ,but it is common in women .There are many types of breast cancer that differs in their capability of spreading to other tissues.

CAUSES

It occurs when some breast cells begin to grow abnormally .The causes of breast cancer are not yet fully known, although a number of risk factors have been identified normal breast cells become cancerous because of mutations in the DNA ,and some are inherited.

DESCRIPTION

A small tree about 6.0m in hight ;leaves simple alternate , bifarious , oblong –lanceolate or elliptic obtuse, glabrous above , lateral nerves 8 to 11 pairs ascending ;flowers yellowish green ,solitary, leaf –opposed or 2-4 on short extra axillary branchlets , sepals and petals three each ;fruits yellowish green ,globose with well markedarevles easily breaking into large pieces, seeds hard, brownish black, smooth .

HABITAT-it is cultivated throughout India.

PART USED-root ,leaves ,fruits and seeds.

3)***Carica papaya***

CLASSIFICATION

Kingdom-Plantae

Cass- Magnoliopsida

Order- Brassicales

Family- Caricaceae

Genus- Carica

Species- C.papaya

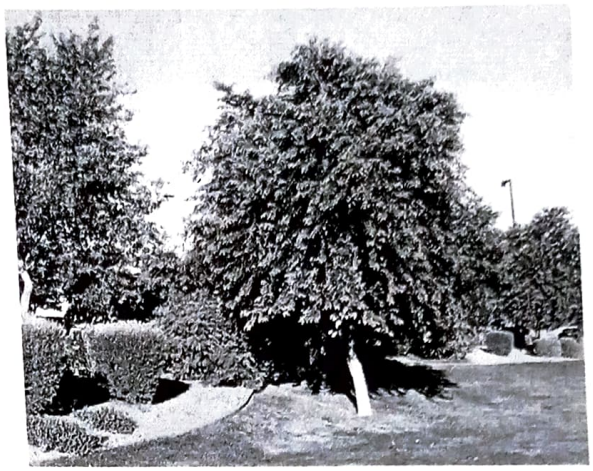
DESCRIPTION

A small , soft wooded, fast growing , short lived lacticiferous tree upto 8.0m in height with a straight cylindrical stem bearing leaf scars , leaves deeply lobed, palm like long , flowers unisexual , white or yellowish white, rarely bisexual fruits one –chambered , secculent , indehiscent spherical or cylindrical ;seeds yellowish brown, ash coloured or black .

HABITAT-throughout India

Part used-fruit and latex.

4)***Dalbergia sisso***



CLASSIFICATION

Kingdom-Plantae

Class-Magnoliopside

Order-Fabales

Family- Fabaceae

Genus-*Dalbergia*

Species-*D.sisso*

DESCRIPTION

Deciduous the upto 3m in height with a crooked trunk , light crown and pubescent or tomentose young parts ,leaves imparipinnate alternate rachis zig-zag leaflets 3-5 terminal one being the largest and lowest the smallest , flowers pale yellow sessile or nearly in axillary panicles shorts than leaves fruit pods narrowed at base into a long stalk , seeds 1-4 per pod.

HABITAT-throughout the sub-Himalayan tracts upto 1500m , also cultivated in Punjab ,Uttar Pradesh , Bengal, and Assam.

Part used-root ,leaves, bark, and heart wood.

5)***Mangifera indica***

CLASSIFICATION

Kingdom-Plantae

Class-Magnoliopsida

Order-Sapindales

Family-Anacardaceae

Genus-Mangifera

Species-*M.indica*

DESCRIPTION

A large evergreen tree upto 45m in height with a heavy doom shaped crown, straight, thick rough dark grey bark, leaves simple , crowded at the end of branches ,linear –oblong or elliptic lanceolate , acute, acuminate or sub obtuse .flowers small ,reddish white or yellowish green in large fleshy many flowered pubescent panicles longer than leaves, fruits large fleshy drupe, green, orange , yellow, or red in colour ,seed solitary, encased in a hard compressed fibrous endocarp.

HABITAT-It is cultivated throughout India.

Part used-root, bark ,leaves, flowers ,fruits, and seed kernel.

6) ***Mimosa pudica***

CLASSIFICATION

Kingdom-Plantae

Class-Magnoliopsida00

Order-Fabales

Family-Mimosaceae

Genus-Mimosa

Species .*M .pudica*

DESCRIPTION

Semi prostrate ,prickly course herb or sub shrub up to 0.5m tall, leaves alternate , bipinnately compound which fold up when disturbed. Flowers pink with several stamens up to 8m long , borne on globose heads. Fruit flat hairy legume(pod) breaking into 2-4 , one seeded segments.

HABITAT-common in disturbed open places , especially road sides cultivated land and waste areas.

PART USED-whole plant.

7) ***Plantago ovata***

CLASSIFICATION

Kingdom-Plantae

Class-Magnoliopsida

Order- Lamiales

Family-Plantaginaceae

Genus-*Plantago*

Species-*P.ovata*

DESCRIPTION

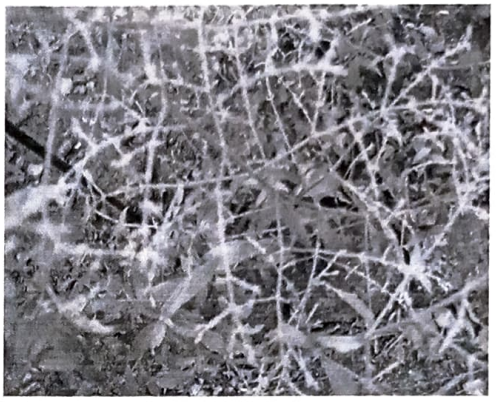
A very short – stemmed softy hairy annual herb, leaves simple, narrowly linear or filiform , finely acuminate, flowers small in cylindrical or avoid

spikes, fruits ellipsoid obtuse capsules, upper half coming off as a blunt conical lid, seeds smooth , yellowish brown, avoid-oblong, boat-shaped.

HABITAT-cultivated in Punjab ,Gujarat and Haryana.

PART USED-seeds.

08) ***Swertia chirayita***



CLASSIFICATION

Kingdom-Plantae

Class-Magnoliopsida

Order-Gentianales

Family- Gentianaceae

Genus-***Swertia***

Species-***S.chirayita***

DESCRIPTION

A medium sized deciduous, glabrous tree about 12m in height with cracked and scaly black bark and irregularly fluted trunk; leaves simple , opposite, elliptic , acute, chartaceous up to 15cm long and 6.25cm broad shining ; flowers white, fragrant , axillary cymes ;fruits avoid or globose , glabrous berries, black when ripe; seeds one or two yellow circular, not much compressed ,8mm in diameter , shining with short uppressed silky hairs.

HABITAT-deciduous forest of West Bengal ,central and south India up to 1200m .

PART USED – seeds.

9) ***Tribulus terrestris***

CLASSIFICATION

Kingdom-Plantae

Class- Magnoliopsida

Order-Zygophyllales

Family-zygophyllaceae

Genus-*Tribulus*

Species-*T.terrestris*

DESCRIPTION

An annual or perennial, prostrate herb with many slender , spreading branches and silky – villous young parts; leaves simple, pinnate , opposite, leaflets almost sessile, rounded or oblique at base, mucronate at apex; flowers bright yellow, solitary pseudo-axillary or leaf-opposed ;fruits 5 angled or winged spinous ,schizocarp, separating into 5 cocci ,each coccus having two long stiff, sharp divaiceate spines towards the distal half and two shorter ones nearer the base , each one or more in each coccus..

HABITAT-throughout India, weed along road sides and waste places.

PART USED-whole plant.

Result

Ethno-medicinal plants used to treat gynaecological disorders

Sl no	BOTANICAL NAME	LOCAL NAME	FAMILY	PART USED	MODE OF ADMINISTRATION	NAME OF PRACTITIONER
1	*ABITULON IDICUM*	Sanjaya,Indian Mallow	Malvaceae	LEAVES	Take one glass of leaf juice in morning and night to cure white discharge ,back bone pain and syphilis.	Mohammad Sattar,Basavakalayan
2	*ANNONA SQUAMOSA*	Sitaphal	Annonaceae	Leaves	Make the powder of dried leaves and used for ammeorhagia and haemorrhage	Abdul Salam
3	*CARICA PAPAYA*	Papaya	Caricaceae	Unripe fruit without flower	Dried fruit powder about one table spoon in orning and night will cure improper menstrual cycle and amenorrhoea	Zainab Bee
4	*DALBERGIA*	Rose Wood	Rosaceae	leaves	Make the decoction of	Abdulla Pattar Shamsheer

10-Withania somnifera

CLASSIFICATION

Kingdom-Plantae

Class-Magnoliopsida

Order-Solanales

Family-Solanacaea

Genus-*withania*

Species-***W.somnifera***

DESCRIPTION

An erect branching under shrub reaching about 150cm in height usually clothed with minutely stellate tomentum leaves ovate up to 10cm long; flowers greenish or lurid yellow in axillary fascicles; fruits globose , berries orange coloured, fleshy roots, dry are cylindrical with a brownish white surface and pure white inside when broken.

HABITAT- throughout India.

PART USED-root and leaves.

8	*SWERTIA CHIRAYITA*	chirayita	Gentianaceae	stem	Take the dried powder with milk or water to cure sexual vitality and helps in proper mestrual cycle.	Md Sattar
9	*TRIBULUS TERRESTRIS*	Gokharu	Zygophyllaceae	fruit	Decoction of dried powder is used to treat urinary troubles and infection, carminative and constipation	Rammana
10	*WITHANIA SOMNIFERA*	Ashwagandha	Solanaceae	root	Dried powder is taken orally with sugar candy is effective in white discharge,joint pain ,back bone ,syphilis and sexual vitality	Mallikarjun Swamy Rajeshwar

	SISSO				dried powder and mixed with black pepper take orally to treat menorrage	Khan Saheb
5	*MANGIFERA INDICA*	Mango	Anacardaceae	leaves	Decoction of dried powder mixed with black pepper , for 21 days in empty stomach to stop bleeding from uterus.	Abdul Gafoor Baag
6	*MIMOSA PUDICA*	Touch me not	Fabaceae	seeds	Seed powder taken orally in morning and night to treat white and red discharge and also haemorrhge	Hakeem Maher Baqsh
7	*PLANTAGO OVATA*	Isabgol	Plantaginaceae	Seed husk	Take the seed husk powder with water and it will be effective in burning sensation of stomach and diarrhea.	Shabbir Sahib B.K

CONCLUSION :

The study reveals that knowledge of use of different ethno-medicinal plants, their parts, doses, application was acquired by local healers by trials and error method. Such knowledge is transferred from one generation to another by word of mouth only. Such knowledge is restricted to few families.

The present study focused on rural women's health and treatment. Herbal medicines are like a blessing in rural areas, where modern medical facilities are not available or insufficient. However the knowledge about herbal remedies is declining day by day as the new generation in rural area is not much interested in it and many of the practitioner are of very old age. It is necessary to put more efforts in the documentation of such knowledge before it get vanished. Also clinical pharmacological validation is required for the formulation to check their efficacy. The highly interesting findings for gynecological disorder require further research, while the efficacy of the various indigenous practices will need to be subjected to pharmacological validation. Greater efforts are therefore required to document this traditional knowledge of people to have a comprehensive account of it, which will open new vistas in local plant research and emerge as safe, less costly and Eco-friendly methods of the treatment of gynaecological disorders. As the little information about the chemical components of theseplants available up till now future research work hopefully will find out the detail bioactive components for the treatment of gynaecological disorder.

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PROJECT REPORT ON

"Phytochemical Screening And Antimicrobial Activity of Allium sativum"

2021-22

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CONTENTS

INTRODUCTION

Garlic is commonly known as **Allium sativum**. In Harsa it is called Tafarnuwa,in yaruba it is called Ayu and in Tgbo it is called Ayu-Ishi(Aliya,2006).Its close relative include the onion,shallot,leek,chive and rakkyo(block,2010) The plant is a member of the Lilaceae family and one of the most popular herbs used world wide to reduce various risk factors associated with Several diseases(Thomson et al.,2007) Also, it is a bulbous perennial food plant .Which give it a botanical name known as Allium sativum and The common name Garlic(Which comes from old English genlac meaning **"spear lack"**) when crushed Alluim sativum yield allivin, an antibiotic and antifungal compound(Phytonocide) It has been climed that it can be used as home to help speed recovery from strep throat or other minor ailments because of its antibiotic properties (Wikipedia 2010). It also contain the sulphur containing compounds allinin, ajoene, diallysufide, enzymes, B-vitamins, proteins, minerals, saponins, flavonoids and maillard reaction products, which are not sulphur containing compounds actiually garlic contain variety of effective compound that enhibit anticoagulant(antibiotic) (anwar2003) , antioxidant (Douglar,2003) antibiotics (Thomson et at.2007) hypoglycemic as well hypotensive activities (Benrgee ad maulik 2002)

The garlic is native to central asia and has long been a stople in the Mediterranean region, as well as frequent seasoning in asia Africa and Europe. The buls of the world as a has been used in many parts of the world as a stimulant and diuretic (Mikait,2003) the garlic has been used as a very effective insecticide (Ramasasa,2009). When the bulk is grinded, the enzyme allinase is released which results in the converstion of alliin to be 2-propensulforic acid, which dimerzer to form allicin. Allicin gives the pungent charactrtic odour to crushed garlic and is belived to be responsible for some of the parmological activity of the plant (Mc Caleb,1993)

Chemical substance found in plants include alkaloids , glycosides, essentional oils , saponins, tannins, steroids, terpenoids, resine, flavonoids, proteins and other. These substance are potent bioactive found in medicinal plant parts that ca be used for therapeutic purposes(Soforwa,1993;Nwadiaro and awachukwa,2007). The knowledge of medicinal plants are important in components of fresh garlic are alliin and enzyme called allinase. Which is responsible for garlic strong smells. Its medicinal claims have included cures
For toothache, cold, coughs and other viral infections. Open wounds and evil

garlic are alliin and enzyme called allinase. Which is responsible for garlic strong smells. Its medicinal claims have included cures
For toothache, cold, coughs and other viral infections. Open wounds and evil
Demons (fluek 1973) several study works have been done on antibacterial screening of selected medicinal herbs (Muniruzzaman and Chowdhary 2004, Direkbusarakom etal, 1992; Harkal etal, 2008; Rajendra, 1990 ; Rath 1990) Garlic contains atleast 33 sulphur compounds , several enzymes, 17 aminoacids
And minerals such as selenium (Newall et al, 1996) recently ,candida species ,such as c parapsilosis and c. glabrate also shows dramatic increase in fungal infections and antifungal resistance (Nguyen et al, 1996 ; Barchiesi et al.,2005)The garlic is used for both food and medicinal usage have been documented since ancient times garlic is one of those plants that were seriously investigated over several years and used for centuries to fight infectious diseases (onyeagba et al, 2004). The early egyphains used garlic to that treat diarrhea and its medical power was described on the walls os ancient timples and on pa[yrey dating to 1500Bc(Bradely 1992) In Europe and india, it was used to treat common colds high fever and asthma. Garlic is neck names as Russian pencillin for its udespread use as a topical and systematic antimicrobial agebnt , it is commonly used inmany culture as an encitement and repectation of healing power(Timbo et al,2006)

Plant Description:

Botanical classification:

Kingdom: Plantae

Division: Magnoliophyta

Class: Magnoliopsida

Order: Aspergales

Family: Amayllidaceae

Genus: Allium

Species: A.Sativum

COMMON NAMES:-

English:- Garlic poorman's freacle

Bengali:- Rasun

Hindi:- Lashan, Lahsun

Arabic:- Sauntaum

German:- Knoblauch, lauch

Italian:- Aglio

Chinese:- Syum fauch

Urdu:- Lehsun

Malayalum:- Vel
Kannada:- Balloli

The leaves are long, narrow and flat like grass. The bulb (the only part eaten) is of a compound nature, consisting of numerous bulblets, known technically as 'cloves,' grouped together between the membraneous scales and enclosed within a whitish skin, which holds them as in a sac.

Bulb: Rounded, composed of up to about 15 smaller bulblets known as cloves. Cloves and bulbs are covered by a whitish or pinkish tunic (papery coat).

Leaves: Four to twelve long, sword-shaped leaves attached to an underground stem.

Flowers: Borne in a dense, spherical cluster on a spike (flower stalk) up to 25 cm long. The young flower head is enclosed in a long-beaked pair of enclosing bracts, which become papery and split to reveal the flowers.

Individual flower stalks arise from a common point. Flowers are greenish-white or pinkish with six perianth segments (sepals and petals) about 3 mm long. Bulbils (asexual propagules), which resemble tiny cloves, are often interspersed among the flowers.

Fruits: Flowers usually abort before developing to a stage at which fertilisation could take place.

Seeds: Not usually produced in the wild but have been produced under laboratory conditions. With a black coat, similar to onion seeds, but approximately half the size.

Location: Garlic, *Allium sativum* is not known from the wild but probably was derived from *Allium longicuspis*, which is native to central Asia. Garlic has been cultivated for more than 5000 years.

Culture: Light: Garlic will do best in full sun but can be grown with satisfactory results in partial shade. Moisture: Garlic can tolerate periods

without rain, but best results come from plants that receive regular watering. Hardiness: USDA Zones 4 - 11. Garlic is grown as an annual, started from cloves broken out of the bulb. Garlic is best planted in the fall and allowed to overwinter in the ground, to be harvested the following summer. In mild climates garlic will grow all winter; in cold climates areas, it will go dormant in the winter, and should be mulched. Propagation: Garlic almost never produces fertile seeds. It must be propagated vegetatively. Divide garlic bulbs into individual cloves and plant them, flattened end down, about 2-3 in (5-7.6 cm) deep and 3-4 in (7.6-10 cm) apart. Rocambole can be started from cloves or from the little bulblets that are produced on the top of the looping stem, but the clovesgrowfaster.

Features: Garlic is the strongest flavored member of the onion family. Protection from vampires is just one of the many uses of garlic. Until quite recently, most civilizations used it medicinally and only their poor people ate it, while the priests and upper class citizens scorned its strong odor.

Garlic contains compounds that are antibacterial, antifungal and reduce blood clotting. In order for the active ingredient that gives garlic its characteristic odor and its therapeutic effects to be released, the garlic clove must be cut or crushed. This releases an enzyme that causes the formation of allicin, the component responsible for garlic's odor and medicinal activity.

Some authorities place the onions, garlics, leeks and their relatives in a family of their own, the Alliaceae, and others put them in the lily family, the Liliaceae. There are about 400 species in the genus *Allium*, including some magnificent ornamentals. Well known members of the genus

include: onions (*A. cepa*), bunching or green onions (*A. fistulosum*), chives (*A. schoenoprasum*), garlic chives (*A. tuberosum*), and *A. ampeloprasum*, which is divided into three horticultural groups

MATERIALS AND METHODS

Collection of Plant Materials

the clove of garlic were purchased from supermarket of gulbarga in the month of January 2017.they were skinned and shade dried under room temperature for 3 days ,to remove the moisture after which they were meshed in to powder.and 5 gram of powder is soaked in 100 ml of methanol and ethylacetate for 24 hours,the residue obtained was filtered by using whatmann No.1 filter paper and the filtrate is used for phytochemical analysis.

Preliminary Phytochemical Screening for secondary metabolites

The extracts were subjected to preliminary phytochemical testing to detect for the presence of different chemical groups of compounds. Air-dried and powdered plant materials were screened for the presence of saponins, tannins, alkaloids, flavonoids, triterpenoids, steroids, and glycosides.

Preparation of test solution

5g of each extract was dissolved in 100 ml of respective solvent and filtered through whatmann filter paper No.1.The filtrates thus obtained were used as test solutions for the following preliminary screening tests.

1. TEST FOR ALKALOIDS

The stock solutions of petroleum ether,chloroform,ethyl acetate,methanol and aqueous extracts were further mixed with the required quantity of ammonia solution followed by acidified chloroform(0.1N HCL and filtered).thus the filterates used as test solution for alkaloid detection using following tests.

a. Mayers test:

(1.36 grams of $HgCl_2$ in 60 ml of distilled water +5grams of KI in 20 ml of distilled water make up the volume to 100 ml) few drops of mayers reagent was added to 2ml of test solution the formation of cream/pale yellow precipitate indicated the presence of alkaloid.

b. Dragendroffs reagent test:

(14grams of KI with 5.2 grams of bismuth carbonate in 50ml of glacial acetic acid) : few drops of dragendroff's reagent and 2ml od dilute HCL were added to the solution an orange red coloured precipitate indicates the presence of alkaloids.

c.wagners test:

(1.27 grams of iodine and 2 grams of KI in 5 ml of distilled water and make up the volume to 100ml of distilled water):2 ml of wagners reagent was added to 2 ml of test solution. the formation of reddish brown precipitate indicates the presence of alkaloids.

2. TEST FOR FLAVONOIDS

a) Shinoda test (Mg/HCl) : A pinch of magnesium powder and 5 N HCl were added to the test solution,formation of deep red or magenta color indicates the presence of flavones or dihydroflavonol. However, dihydrochalcones and other flavonoids did not react with this reagent (Dey and Harborne,1989).

b) Lead acetate test : To the successive plant test solutions ,add few drops of 10% lead acetate solution, appearance of a yellow color precipitation indicate the presence of flavonoids.

c) Pew's test (Zn/HCl) : A pinch of zinc powder and about 5 drops of 5 N Hcl were added to the test solution.it results deep purple red (dihydroquercetin) or cherry red (dihydrokaempferol flavonones). dihydrochalcones and other flavonoids get most at pinkish or brownish colors (Dey and harborne,1989).

d) NaOH test : 1 ml of 1 N NaOH solution was added to the 1 ml of test solution, formation of yellow colour indicates the presence of flavonoids.

e) $FeCl_3$: Take 2 ml of test solution and add $FeCl_3$ solution ,appearance of intense green color indicates the presence of flavonoids.

3. TEST FOR GLYCOSIDES

a) Kellar-killiani test : The test solution of the extract was dissolved in glacial acetic acid and after cooling, two drops of ferric chloride solution was added to it. These contents were transferred to a test tube containing 2 ml of concentrated sulphuric acid.A reddish brown color ring observed at the junction of two layers indicates glycosides.

b) conc H_2SO_4 test : 1 ml of concentrated H_2SO_4 was added to 1 ml of test solution and was allowed to stand for 2 minutes. The formation of reddish color indicates the presence of glycosides.

c) Legals test (cardinolides) : To the test solution add few drops of pyridine(make alkaline by adding sodium nitropruside solution)formation of pink to blood red colour indicates the presence of cardiac glycosides.

4. TEST FOR PHENOLS:

a. Phenol test : When 0.5 ml of $FeCl_3$ (w/v) solution was added to 2 ml of test solution, formation of an intense color indicates the presence of phenols.

b. Ellagic acid test: The test solution was treated with few drops of 5% (w/v) $NaNO_2$ solution. The solution turns muddy or brown precipitate occurs in the extract indicating the presence of phenols.

c. Hot water test : Dip a mixture of leaf in the test tube containing hot water ,warm it for few minutes, the development of black or brown coloured ring at the junction of dipping indicates the presence of phenols.

5. TEST FOR SAPONINS-: (Gibbs, 1974)

Foam test -: 0.1 g of crude extract was shaken vigorously in 2 ml of distilled water. Formation of honey comb like froth persisting for a few minutes indicates the presence of saponins.

6. TEST FOR TRI TERPENOIDS

a)Salkowski's test: few drops of concentrated H_2SO_4 to the test solution, shaken on standing ,the lower layer turns golden yellow color indicates the presence of triterpenoids

b)Liebermann-Burchard test: To the test solution add few drops of acetic anhydride mix well and add 1 ml of concentrated H_2SO_4 from the sides of the test tube, formation of violet ring at the junction of two layers indicates the presence of triterpenoids.

7. TEST FOR STEROLS

a) Liebermann-Burchard test : A green color was formed when the Lieberman-burchard reagent is added to the test solution indicates the presence of sterols.

b) Salkowski's test : A wine red color was developed when chloroform and concentrated H_2SO_4 were added to the test solutions indicates the presence of steroids.

c) Sulphur test: A pinch of sulphur powder is added to the test solution, the sulphur settles down at the bottom of the test tube which is insoluble in test solution indicates the presence of sterols.

8. TEST FOR TANNINS:- (Trease and Evans;1989)

a) $FeCl_3$ test-: to the 2 ml of test solution add 2 drops of 5% of $FeCl_3$ (w/v) solution added, formation of green colour indicates the presence of tannin.

3.4 A Quantitative estimation of secondary metabolites

A. ESTIMATION OF ALKALOIDS

The total alkaloids of medicinal plants were estimated by ikan's method (1981).

Reagents required :$CHCl_3$,NH_4OH,Glacial acetic acid, n-Hexane and Methanol.

Procedure: 50g powdered plant material was macerated with methanol(Analytical grade) in mortar with pestle and centrifuged (2X) .The supernatant collected was condensed to $1/4^{th}$ volume and dilute acetic acid was added in a separating funnel. The acid layer was collected and 25ml of n-hexane and chloroform (1:1) mixture was added and shaken well (3X). The chloroform layer was collected and washed with distilled water its P^H was adjusted to 11-12 by the addition of NH_4OH .The chloroform layer was separated and filtered using whatmanNo.1.The filtrate was finally transferred to a clean and pre-weighed beaker and dried under pressure at 40^0 C for 6 h. The amount of alkaloid was calculated using the following formula.

$$\text{Total Alkaloids} = \frac{\text{Weight of Alkaloid residue (X)}}{\text{Weight of plant material (W)}} \times 100$$

Where,

Weight of the residue (X) = Z – Y

Y = Weight of the evaporating dish.

Z = Weight of the alkaloid containing dish.

B. ESTIMATION OF FLAVANOIDS

The total flavanoids of selected 03 medicinal plants were quantitatively estimated by swain and hills (1959) method.

Reagents required:

Vanillin reagent:freshly prepared by dissolving 1 g of re-crystallized vanillin in 100 ml of 70% (w/v) concentrated H_2SO_4.

Phloroglucinol standard : 100 mg phloroglucinol was dissolved in 100 ml distilled water. Procedure: 500 mg powdered selected plant material was homogenized with 10 ml methanol using mortar and pestle. Then, the homogenate was centrifuged at 3000 rpm for 20 minutes (2X) .the supernatant collected was evaporated to dryness keeping in a hot water bath at 80^0 C .Thus ,the residue obtained was re dissolved in 5 ml distilled water. From this, 0.1 and 0.2 ml extracts were taken in test tubes and diluted to 2 ml with distilled water.4 ml vanillin reagent was added to each test tube rapidly. After 15 minutes the appeared brick red was colour read at 500 nm in the digital spectrophotometer against blank reagent. The standard curve was plotted using different concentrations or phloroglucinol as the standard flavonoids. The amount of flavonoids present in the sample was calculated with the help of the standard graph.

$$\text{Mg/100g content} = \frac{\text{Graphical value}}{\text{Weight of the plant material taken for reading}} \times \frac{\text{volume of total}}{\text{volume of content}} \times 100$$

C.ESTIMATION OF CARDIAC GLYCOSIDES

Reagents required- Ethanol (70%),disodium hydrogen phosphate ($Na HPO_4$),(12.5 %) lead acetate, methanol.

Procedure:25g of powdered plant material was mixed with 200ml of 70% ethanol and kept on rotator shaker at 300 rpm for 6 hour at room temperature .filter it and add 500 ml of distilled water followed by 100 ml of 12.5% lead acetate (to precipitate tannins, resins and pigments).later the volume made up to 800ml with distilled water and keep it on shaker for 10 minutes at 300 rpm to this add 200 ml of (4.77%) disodium hydrogen phosphate ($Na_2 HPO_4$) solution is added to precipitate excess of pb^{++} ions .the above solution is then filtered and evaporated to dryness. calculate the percentage of cardiac glycosides using the given formula below.

$$\%\ \text{of glycosides} = \frac{\text{Weight of dried extract}}{\text{Weight of plant material}} \times 100$$

D. ESTIMATION OF TOTAL PHENOLS

The total phenols were estimated according to bray and Thorpe (1964) method.

Reagents required: Ethanol 80%, Folinciocalteau reagent (FCR) (1:1) with distilled water,2 grams of Na_2CO_3, dissolved in 100ml distilled water.

Catechol standard-: Catechol (100mg) was dissolved in 100ml distilled water in a volumetric flask and further diluted to 10 fold to obtain a working standard

Procedure: 500mg of the selected sample was macerated in 10ml ethanol with pestle and morter the homogenated solution was centrifuged at 10,000 rpm for 20 minutes the supernatant was separated, while the pellet once again re suspended in 10 ml of 80% ethanol and centrifuge ,the pooled supernatant was evaporated to dryness then the residue re dissolved in 5ml of distilled water. From this 0.1 and 0.5 ml aliquots were taken and their final volume is made up to 3 ml with distilled water. Then add 0.5 ml folinciocalteau reagent and after 3 minutes add 2 ml of 20% Na_2CO_3 w/v solution were added and mixed thoroughly. The test tubes were incubated in boiling water bath for a minute and cooled and the absorbance was read at 650nm in spectrophotometer against the blank reagent. a blue colour complex was produced (due to molybdenum complex) .the standard curve plotted using one percent w/v as a standard phenol.

$$\text{Mg/100g} = \frac{\text{graphical value}}{\text{Weight of the plant material}} \times \frac{\text{volume of total content}}{\text{volume of content taken for reading}} \times 100$$

E.ESTIMATION OF TOTAL SAPONINS

The total saponins were estimated in plant material using the method of Sanchez et al. (1972) modified by Rishi et.al.(1976).

Reagents required : 3N Hcl,NH_4OH (Aqueous),chloroform, concH_2SO_4 and methanol.

Procedure: 500 mg selected plant material was hydrolyzed by re fluxing with 25 ml of 3N HCl at 60^0 C for 4 h. The solid matter is retained on the whatmanNo.1 filter paper and further washed it with half diluted aqueous NH_4OH until the washings were neutral (Ph 6.8-7.0).Then ,the residue was dried and extracted for saponins in the soxhlet extractor using chloroform for 6 h. From this 1 ml extract was taken and evaporated to dryness in vaccumm. Thus, the residue obtained was re-dissolved in 4 ml H_2SO_4 and methanol reagent. The absorbance was read at 405nm in UV/VIS Spectrophotometer against a blank. After allowing the reaction to proceed for 2 minutes which is optimum time required for the

chromophore to develop a stable optical density. The amount of saponins present in the plant material was calculated.

F.ESTIMATION OF TRITERPINOIDS

Reagents required: petroleum ether, alcohol

Procedure: weigh 500mg of dried plant material and homogenized in alcohol allowed to stand for 24 hours. The filtered was extracted with petroleum ether and extract was treated as total triterpenoid content.

G.ESTIMATION OF STEROLS (Libermann-burchard method)

Reagent required: chloroform, libermann-burchard reagent, cholesterol used as a standard.

Procedure: 500 mg of dried plant material is homogenized with alcohol. The 1 ml of plant extract is added with 4 ml of chloroform. Then add 2 ml of libermann-burchard reagent in the test tubes and shake well, the test tubes were covered with black paper and kept for incubation under dark condition for 15 minutes. Formation of green colour complex formed and the absorbance was measured at 640nm in spectrophotometer against the blank.

H.ESTIMATION OF TANNINS

The total tannins were estimated by Folin denis method (Schanderi,1970),

Reagents required:

Folin-denis reagent: sodium tungstate 100g and 20 g phosphor-molybdic acid were dissolved in 750 ml of distilled water, then 50 ml phosphoric acid was added and refluxed the mixture for 2 hours and the final volume is made up to 1000ml with distilled water.

Na_2CO_3 solution: 350g Na_2CO_3 was dissolved in 1000ml distilled water at 70-80C and filtered through glass funnel after allowing it to stand overnight.

1% (w/v) tannic acid (standard): tannic acid (100mg) was dissolved in 100 ml distilled water. From this a working standard has prepared by adding 10ml distilled water to 5ml stock solution that results 0.5mg /ml tannic acid.

Procedure: 500mg powdered plant material was taken in a clean test tube and 7.5ml of distilled water was supernatants the final volume was made to l0ml 0f distilled water. From these 0.1 and 0.5ml were taken in test

tune add o.5ml of Folin-Denis reagent and 1 ml of sodium carbonate (Na_2CO_3) solution were added to each test tubes, once again final volume is adjusted to 10ml with distilled water, Contents of the tube were mixed well and incubated at room temperature for 30 minutes. The blue colour solution was read at 700nm in spectrophotometer against the blank, The standard curve was plotted using tannic acid at different concentrations (0.2, 0.4, 0.6, 0.8 and 1ml) from which the total tannin content of the plant material were calculated.

I.ESTIMATION OF TOTAL POLYPHENOL CONTENT

Reagent:80%acetone,tannic acid, folin - dennis reagent,20% Na_2CO_3,denis reagent,20% Na_2CO_3 Solution

1% (w/v)tannic acid(standard) :tannic acid (100mg) was dissolved in 100ml of distilled water from this a working standard was prepared by adding 10ml distilled water to 5ml stock solution that results 0.5mg /ml tannic acid.

Procedure: take o.5 grams of fresh leaves of ***Allium sativum(L).*** (Jacq.) Kunth ex Walp, homogenize with 80% acetone with the help of pestle and mortar. Filter the extract through Buchner funnel and residue is washed with 80% acetone for several times and final volume is made up to 50 ml with acetone. From this solution 2 ml of plant extract along with the series of standard tannic acid (0.1mg/ml) were taken in separate Nessen's tubes. In each tube volume is made up to 50 ml with distilled water. After 20 minutes measure the absorbance at 660nm in spectrophotometer against blank.

Determination of ash value:-

Take a known weight of the dried plant material in pre weighed silica crucible. Heat it on a Bunsen burner at a low flame, till the plant material gets charred. Then it is transferred to a muffle furnace and heated strongly at a dull red heat (400-450^0 C) till a white ash is obtained .It is cooled in desiccators for about 15 to 30 minutes and weighed using electronic balance and the readings are noted down (Raghunathan,1976).

$$\text{Total ash value of the sample} = \frac{Z-X}{Y} * 100$$

Where,

Weight of the empty crucible =Z

Weight of crucible with Ash =X

Weight of the plant material (g) = Y

Weight of the dish + Ash = $\frac{Z-X}{Y} \times 100$

Weigh 1 g of ash ,in conical flask add 25 ml of double distilled water and 25 ml of concentrated H_2SO_4 ,the total volume will be 50 ml and stir gently. Then filter the solution in Whatmann filter paper, the solution contain 1 gram of ash in 50 ml of the solution. Then add 950 ml of double distilled water ,make the volume of 1000ml .with an accurate concentration of ash, the solution is read at different wavelength with respect to its metal and is analyzed by atomic absorption spectrophotometer and the concentrations are calculated in mg/L.

Antimicrobial activity:-

Preparation of crude extract by hot water bath extraction:-

Weigh 10 gm of powdered plant material and dissolved in 100 ml of organic solvents like petroleum ether, chloroform, ethyl acetate, methanol and aqueous solvents, in a volumetric flask and then kept in hot water bath with maintained temperature of about 60^0C (for chloroform 55^0C) and frequently heated for regular time intervals .Then filter the extract and collect the extract in clean test tube used for further work.

Sterilization:-Glass wares, petriplates and other required materials were used for the experiment are sterilized by using various techniques.

Composition of YDPA media:-

Yeast extract-10 g
Peptone-20 g
Dextrose-20 g
Agar- 15 g
P^H - 5.6
Distilled water - 1000ml

Procedure-The above ingredients are dissolved in 1000 ml distilled water in clean conical flask and sterilized in autoclave. The media is later poured in to sterilized petriplates.

Composition of NA media:-

Peptone-5g
Beef extract-3 g
Agar-15 g
P^H-7.2

Procedure:-The above ingredients are dissolved in 1000ml distilled water in clean conical flask and sterilized in autoclave. The media later pour in to sterilized petriplates and allow it to solidify completely.

Antimicrobial activity of Allium sativum(L).

The microbial strains are obtained from department of botany, Gulbarga university kalaburagi, Karnataka. The bacterial strains studied in antibacterial activity are bacillus subtilis, Escherichia coli, klebsiella pneumonia, staphylococcus aureus, salmonella typhi and fungal strains studied in antifungal activity are candida albicans, candida tropicalis, candida glabrata, candida haemulonii.

Antimicrobial Assay By Agar Well Diffusion Method:-:Yeast peptone dextrose agar medium for fungal strains and nutrient agar (NA) medium for bacterial strains were prepared and sterilized by autoclaving the media and poured into sterile petriplates and allow the media to solidify. The selected micro organisms were swabbed using sterile cotton swab or inoculating loop on culture medium and bore wells of 6mm using cork borer. The wells were filled with 40 mg/ml and 20mg/ml of plant extract. in other wells, supplements of DMF used as negative control and reference antimicrobial drug streptomycin for bacteria and ketoconazole (100mg/ml) for candida strains were used as positive controls, respectively. The experiment was carried out in triplicate and the plates were incubated at 32^0C for 24 hours and results were recorded as zone of inhibition in mm (Artizzu *et al.,* 1995).

Results

The crude extract of A. sativum bulb showed positive results for alkaloids, glycosides, saponins, flavonoids, steroids, proteins, carbohydrates, oils, reducing sugars and acidic compounds (Table 1). The extract of the plant material was, however devoid of tannins, resins and terpenoids. Carbohydrates, glycosides and proteins occurred in high concentrations. Alkaloids, saponins, steroids, reducing sugars and oils were present in medium concentrations, while flavonoids and acidic compounds had low concentrations (Table 1). The results of the sensitivity tests showed that all the six micro-organisms exposed to the methanolic extract of garlic bulb were sensitive to the plant extract. The microorganisms studied had obvious differences in their susceptibility to garlic bulb extract. C. tropicalis showed the highest inhibition zone diameter (30 mm), followed by C. albicans (29 mm), while S. paratyphi showed the lowest (15 mm) inhibition zone diameter (Table 2). Table 3 shows the MIC of the garlic bulb extract on the test isolates. The MIC results for the test organisms were S. paratyphi (50 mg/ml), B. subtilis (25 mg/ml), K. pneumoniae (100 mg/ml), C. albicans (12.5 mg/ml), C.

Results:

Table-1 :Quantitative screening of secondary metabolites of ***Allium sativum(L).***

Sl.no	Phytochemical test	Ethyl acetate	methanol
1.	Alkaloids		
a)	Mayers test	-	-
b)	Dragendroff's test	+	+
c)	Wagners test	-	+
2.	Flavanoids		
a)	Pew's test	-	+
b)	Shinoda's test	+	-
c)	NaOH test	-	+
d)	Lead acetate test	-	-
e)	$FeCl_3$ test	+	-
3.	Glycosides		
a)	kellar-killiani test	+	+
b)	H_2SO_4 test	-	+
c)	Legal test	+	+
4.	Phenols		
a)	Ellagic test	-	-
b)	Phenol test	-	+
5	Saponins		
a)	Foam test	+	-
6.	Tri-terpenoids		
a)	L-B test	+	+
b)	Salwoski test	+	+
7.	Sterols		
a)	L-B test	+	-
b)	Salwoski test	-	+
c)	Sulphur test	+	+
8.	Tannins		
a)	$FeCl_3$ test	-	-

Table-2 : Estimations of secondary metabolites of Allium sativum(L).

Phytoconstituent	Quantity (mg/g)
1. Alkaloid	0.026
2. Flavonoid	0.084
3. Glycoside	0.436
4. Phenol	0.12
5. Saponin	1.974
6. Triterpenoid	0.99
7. Sterol	0.217
8. Tannin	0.10

Graph: Estimations of secondary metabolites of Allium sativum(L).

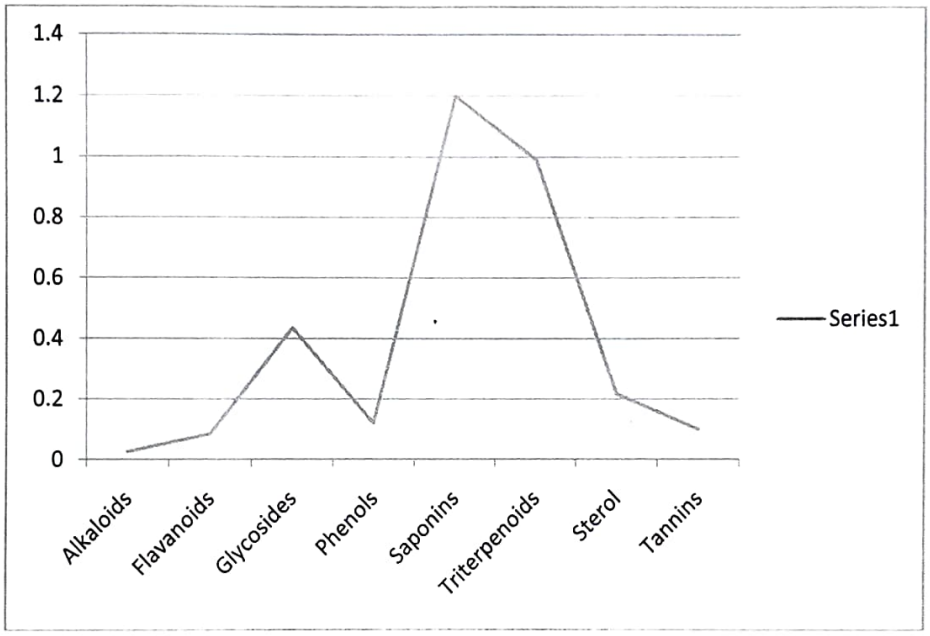
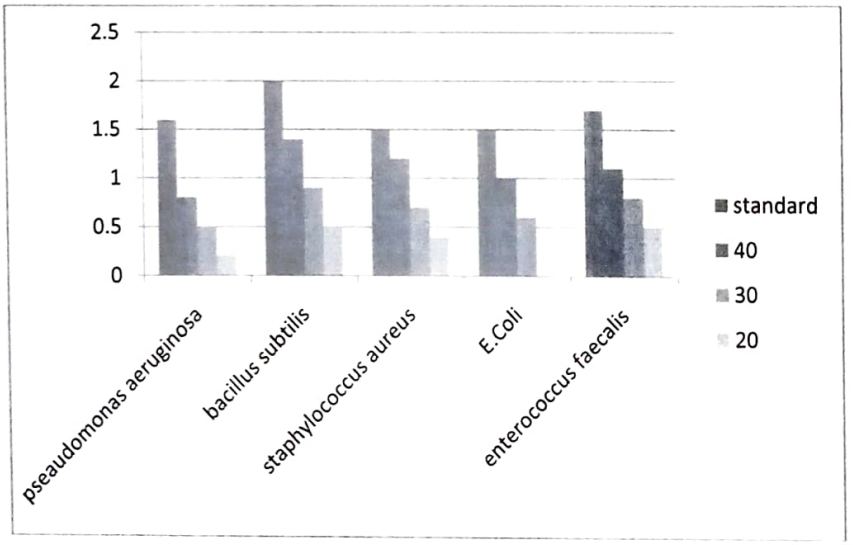
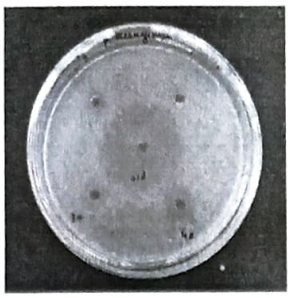


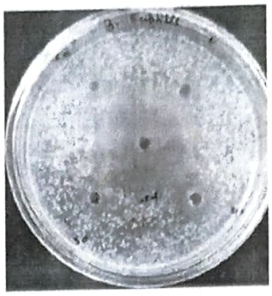
Table no 3-Antibacterial activity in methanolic extract of Allium sativum(L)

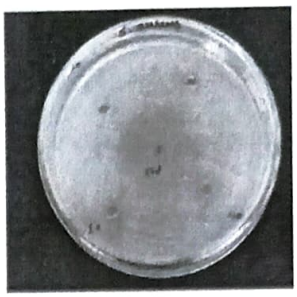
Solvents	Name of bacterial strain	Std	40 Conc	30 Conc	20 Conc
methanol	Pseudomonas aeruginosa	1.6	0.8	0.5	0.2
	Bacillus subtilis	2.0	1.4	0.9	0.5
	Staphylococcus aureous	1.5	1.2	0.7	0.4
	Escherichia coli	1.5	1.0	0.6	0.4
	Enteriococcus faecalis	1.7	1.1	0.8	0.5

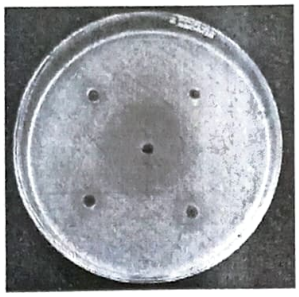
Graph 1 :showing antibacterial activity of methanol extract in Allium sativum(L)



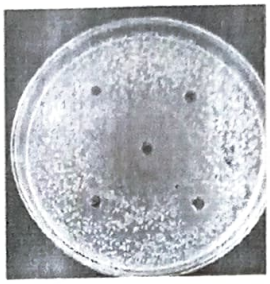




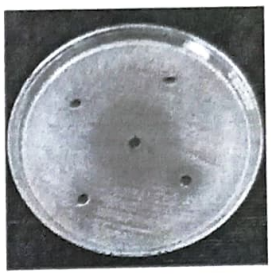




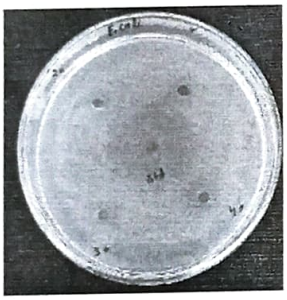
Pseudomonas aeruginosa

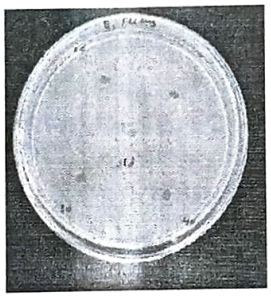


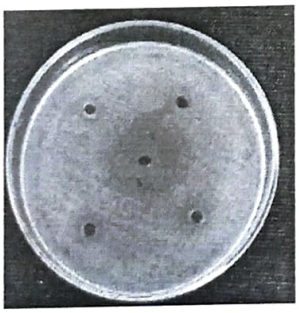
Bacillus subtilis



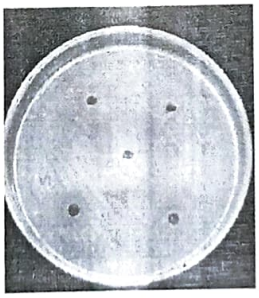
Staphylococcus aureus







E. coli



Enterococcus

Table no 4-Antibacterial activity in ethylacetate of Allium sativum(L)

Solvents	Name ofbacterial strain	Std	40 Conc	30 Conc	20 Conc
Ethyl acetat	Pseudomonas aeruginosa	2.5	–	–	–
	Bacillus subtilis	2.8	1.1	1.0	–
	Staphylococcus aureous	2.4	–	–	–
	Escherichia coli	3.0	–	–	–
	Enteriococcus faecalis	2.6	–	–	–

Graph: 2 showing antibacterial activity of ethyl acetate extract in Allium sativum(L).

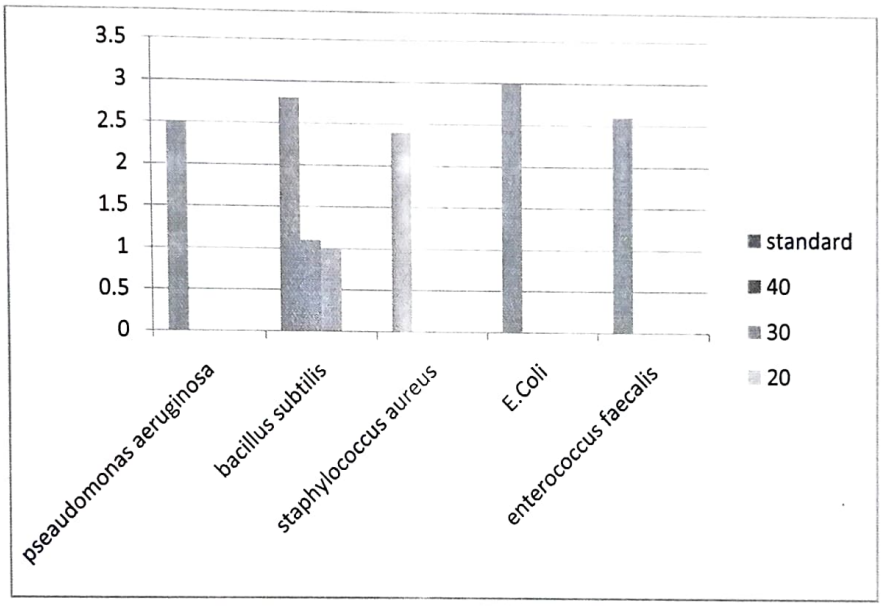
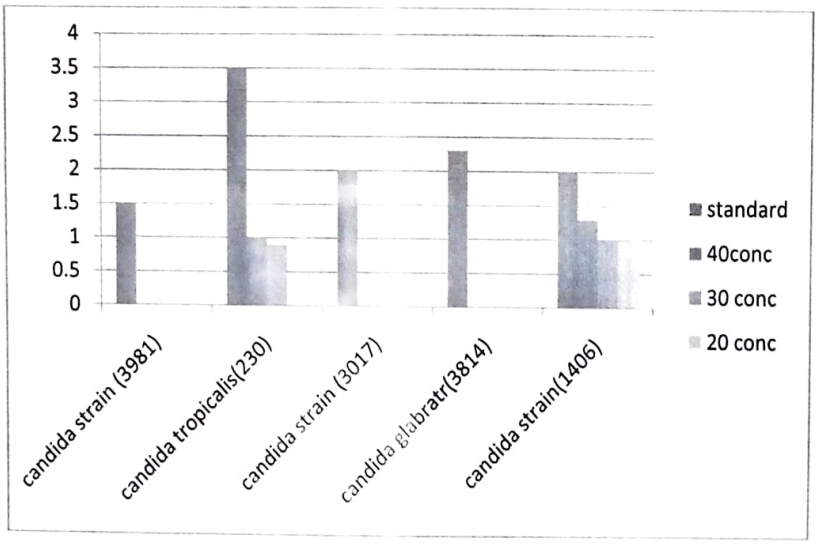


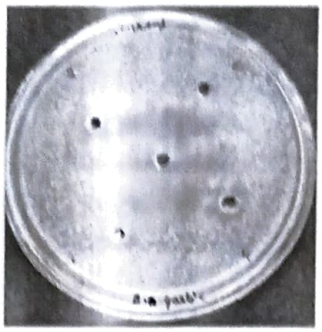
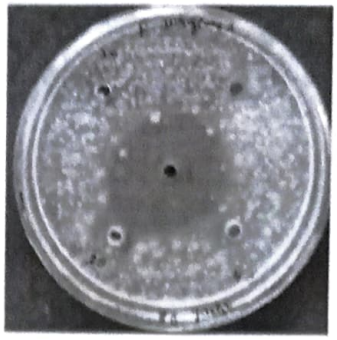
Table no 5:

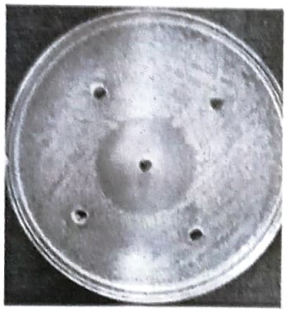
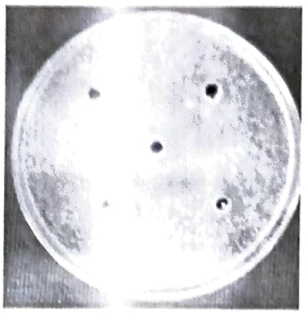
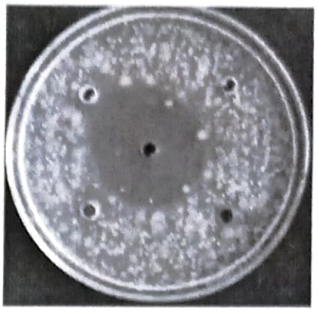
antifungal activity of Allium sativum(L) in methanol extract

Solvents	Name of fungal strains	std	40 Conc	30 Conc	20 Conc
Methanol	Candida strain3981	1.5	0	0	0
	C. tropicalis 230	3.5	1.0	0.9	0
	Candida strain 3017	2.0	0	0	0
	C.glabrata 3814	2.3	0	0	0
	Candida strain 1406	2.0	1.3	1.0	1.0

Graph;3 antifungal activity of Allium sativum(L) in methanol extract



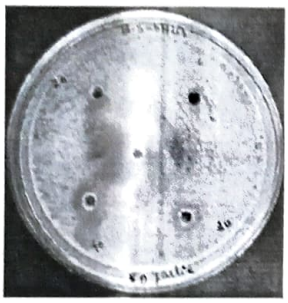
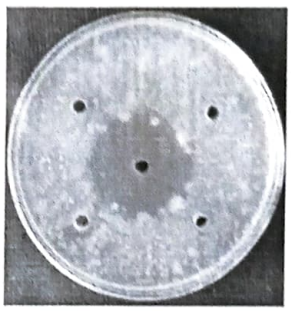




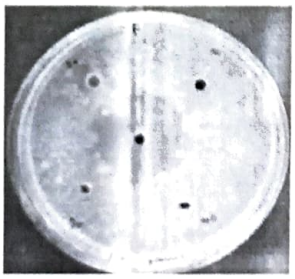
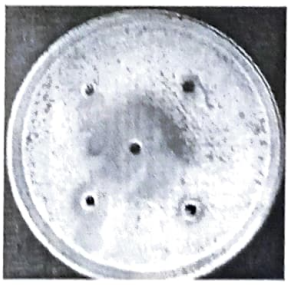
E.coli

Staphylococcus aureus

pseudomonas aeruginosa

E coli a

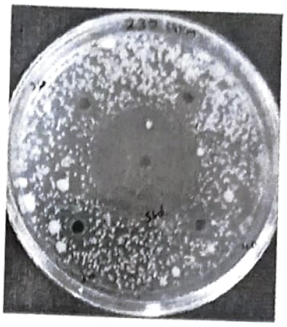



Bacillus subtilis

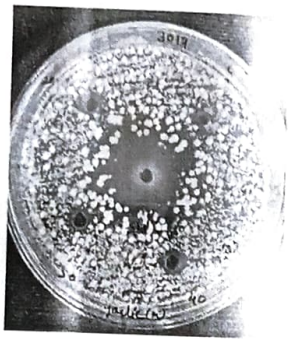
Enterococcus feacalis

Antifungal activity of allium sativum in methanol extract

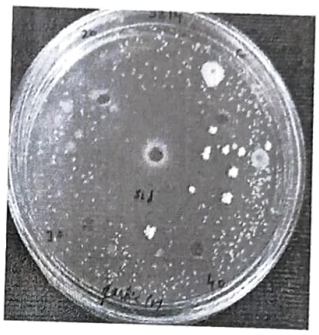
3981



C. tropicalis 230



3017



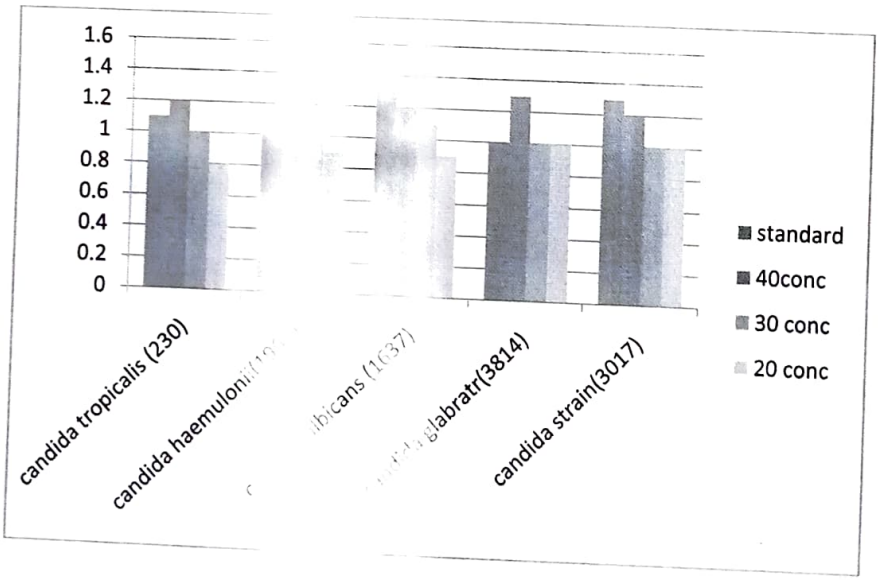
C. glabarata 3814

1406

Table:5 antifungal activity of allium sativum in ethyl acetate extract

Solvents	Name of fungal strains	std	40 Conc	30 Conc	20 Conc
Ethyl acetate	C.tropicalis (230)	1.1	1.2	1.0	0.8
	C.haemulonii(1966)	1.0	1.0	1.0	0.9
	C.albicans 1637	1.0	1.2	1.1	0.9
	C.glabrata 3814	1.0	1.3	1.0	1.0
	Candida strain (3017)	1.3	1.2	1.0	1.0

Graph : 4 showing antifungal activity of ethyl acetate extract in Allium sativum(L).



Conclusion:

The spices has been screened for phytochemica constituents seemed to have the potential to act as the source of useful drugs

And also to improve health states of the consumers as result of presence of various.the Allium sativum bulb produced Antimicrobial effect.It contain important and active phytochemical compounds which which justify the various therapeutic uses attributed to it in folklore medicine.there are several advantages for the use of spices(derived from plant origine), as dietary supplement or alternative medicine manifested by reduction the chance for developing antibiotic resistant bacteria that resulted from the frequent use antibiotics (misuse, abuse),beside decreasing the cost of treatment (drug administration) and also minimizes the developing of advers drug reaction.

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