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# Chemical Composition and Antioxidant Potential of Extracts from *Cyperus rotundus* and *Cyperus papyrus*.L

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***Abstract:*** The aim of this study was to assess antioxidants activity of *Cyperus rotundus* and *Cyperus papyrus*. The **extracted** were carried out by Soxhelt and evaluated for their antioxidant activity using in vitro antioxidant assay, DPPH free radical scavenging capacity in methanol extracts of *C.rotundus* (88.05%) were higher as compared to chloroform extracts (24.03%) last petroleum ether (11.03%).DPPH free radical scavenging capacity in methanol extracts of *C. papyrus* (89.03%) were also higher as compared to chloroform extracts (14.08%) last petroleum ether (09.02%) at concentration of 2.5-10.0 mg/mL. We determine from above results that methanol extracts of *C.rotundus* have the highest antioxidant activity. The extract of methanol by soxhelt of *C.rotundus* L. was analyzed by GC-MS analysis fifty five components of *C.rotundus* representing. The main constituents in *C.rotundus* were2-Methoxy-4-vinylphenol (15.87%), 4H-Pyran-4-one, 2,3-dihydro-3,5-dihydroxy-6-methyl-(11.90%),3-Hexen-2-one, 3,4-dimethyl-3hexen-2-one(9.95%),3-Cyclohexen-1-carboxaldehyde, 3,4-(7.66%), 2-Cyclopenten-1-one, 2-hydroxy-(6.82%), Cyclohexanol, 2-methyl-3-(1-methylethenyl)-, acetate, (1.alpha.,2.alpha.,3.alpha-(5.49% ) methanol extract of rhizomes of *C. papyrus* L. Was analyzed by GC-MS analysis fifty components representing. The main constituents in was, 5-Hydroxymethylfurfural (57.51%).The results revealed significant percentage.

***Keywords****: Antioxidants, Cyperus Rotundus, C. Papyrusand DPPH Free Radical Scavenging Capacity.*

## I. INTRODUCTION

Plants have a great potential for producing new drugs of great benefit to mankind. There are many approaches to the search for new biologically active principles in higher plants(Jigna Parekh, 2006).

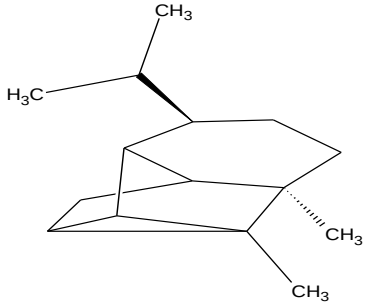
Sudan has a rich of medicinal plants, most of which have been traditionally used, these plants were used as a natural source for pharmaceutical purpose designed for anti- inflammatory activity and may provide a new lead pharmacophore for more potent analogues particularly the current review showed that the two plants*C.rotundus* and *C. papyrus* have different biological activities considered as inflammation or related to inflammation process(Mona S. Mohammed1, Hassan S. Khalid2, 2014).

For thousands of years, doctors and other medical personnel kept detailed notes on papyrus describing the disease encountered, and the treatment applied in all areas of medicine, including gynecology, bone surgery and eye complaints. Papyrus was a firm and ancient writing scroll the word paper is derived from papyrus. Papyrus was discovered in Egypt around 4000 BC. The raw material of papyrus paper came from the plant *C.papyrus* Medical records in the days of Imhotep (the immortal Egyptian physician and demi-god) and even Hippocrates were kept on papyrus. It was comfortable for the doctors(Zealand, 2009).

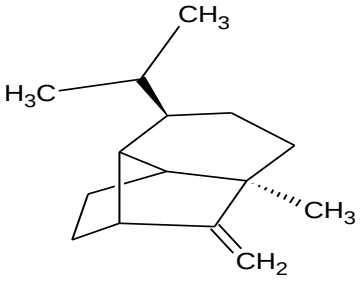
*C.papyrus* L.(Cyperaceae) is a monocotyledon and perennial plant with loutish rhizomes growing up to 2.5 m height, It is native to Africa, Madagascar and the Mediterranean countries, In Southern Africa, it is limited to the lower altitude and warmer parts of Namibia, Botswana,, Mpumalanga and KwaZulu- Natal, *C. papyrus* has been reportedly used for various purposes, the most famous is the papyrus paper, In addition, the plant has been the subject of intense ecological studies centered on its prodigious growth rate and ability to recycle nutrients , The ethanol extract from the tubers of the plant have also been reported to show antioxidant properties, Today, *C. papyrus* is widely cultivated as an aquatic ornamental plant(Lawal *et al.*, 2016).

*C. papyrus* is a giant herb, the Culm of which ranges from 1 to 5m of height. It is a perennial plant with decumbent and coarse rhizomes. The plant is distributed in Northern Africa (Egypt, Sudan) and Central Africa (Cameroon, Guinea and Nigeria) and Palestine(Sonwa, 2000).

*C.rotundus* L., (Muthaghas (Bengali), Motha (Hindi), Nutgrass (English) family Cyperaceae) is a perennial sedge distributed throughout India. The roots and rhizomes of this plant are used in different diseases like chronic diarrhea, inflammation, skin rashes, and excess bleeding. It has also antiestrogenic, antimicrobial, antihistaminic, antiemetic, antipyretic, and antidiabetic activities(Pal and Dutta, 2006).Cyperaceae are the third largest mono- cotyledonous family(Sonwa and Konig, 2001). were studied regarding their chemical compositions of the tow this types of *Cyperus* species *C.rotundus*, and *C. papyrus* were showed by comparison. The essential oil of *C. papyrus* analyzed by GC (fig A and B) and GC-MS which allowed the identification of cyclosativene [A] sativene [B](Sonwa, 2000).




[A] cyclosativene




[B] sativene

The main constituents detacted by GC MS in the essential oil from *C.rotundus* were cyperene (9.76%), humulen (7.97%), β-selinene (7.88%), zierone (4.62%), campholenic aldehyde (3.83%), α.-pinene (3.51%), longiverbenone (2.72%), β.-vatirenene (2.32%), copaene (1.79%), limonene (1.45%)(Sonwa and Konig, 2001). aim of this Study to screen phytochemical constituents of *C.rotundus. L* and *C. papyrus* plant and determine their antioxidantand activity**,** and comparative between two plants on that genus.

## II. MATERIALS AND METHODS

### Chemical

Petroleum ether(60-80°C),Chloroform, Methanol, Ethanol, Ethyl acetate, Toluene, Anhydrous Na2SO4, Benzene, Acetic acid (glacial), Acetic anhydride, Ferric chloride, Magnesium turning, Gelatin powder, Sodium chloride, Potassium Hydroxide, Water, Aceticacid, Butanol, Diethyl ether, Ammonium Hydroxide and others.

### Plant Materials

Tow samples of *C.rotundus* rhizomes and *C. papyrus* rhizomes were collected from sennar, and Blue Nile State(Dammazen) areas- in (July 2018). The rhizomes were dried at room temperature for two weeks and grounded into powder.

### Successive extraction

*C.rotundus* rhizomes powder (30gm) using Soxhlet extractor was successively extracted with petroleum ether (60-80°C), chloroform, and methanol, the solvent was carefully evaporated from each extract and the extractability of each solvent was determined.

### Phytochemical Screening of the prepared extracts

The prepaered extracts was tested for the presence or absence of triterpenes, alkaloids, flavonols, carbohydrates, reducing compounds, flavones, saponins, leucanthocyanins, coummarin, cynnidine, unsaturated sterols and saturated sterols, tannins, the phytochemical screening cured out according to methods described by Harbone1984( Harbon J B, (1984).

### DPPH radical scavenging assay

The DPPH radical scavenging was determined according to the method of Shimada*et.al.*(1992).With some modification. In 96-wells plate, the test samples were allowed to react with 2.2Di (4-tert-octylphenyl)-1-picryl-hydrazyl stable free radical (DPPH) for half an hour at 37ºC. The concentration of DPPH was kept as (300µM). The test samples were dissolved in DMSO while DPPH was prepared in ethanol. After incubation, decrease in absorbance was measured at 517nm using multiplate reader spectrophotometer. Percentage radical scavenging activity by samples was determined in comparison with a DMSO treated control group. All tests and analysis were run in triplicate (Shimada K,1992).

### Gas Chromatography Mass Spectrometry (GC/MS) Analysis

### GC/MS Conditions

The qualitative and quantitative analysis of the sample was carried out by using GM/MS technique model (GC/MS-QP2010-Ultra) from japans 'Simadzu Company, with serial number 020525101565SA and capillary column (Rtx-5ms-30m×0.25 mm×0.25µm).The sample was injected by using split mode, instrument operating in EI mode at 70eV. Helium as the carrier gas passed with flow rate 1.69 ml/min, the temperature program was started from 50c with rate 7c/min to 180c then the rate was changed to 10c/min reaching 280c as final temperature degree , the injection port temperature was 300c, .the ion source temperature was 200c and the interface temperature was 250c.The sample was analyzed by using scan mode in the range of m/z 40-500 charges to ratio and the total run time was 28 minutes .Identification of components for the sample was achieved by comparing their retention index and mass fragmentation patents with those available in the library, the National Institute of Standards and Technology (NIST). , results were recorded.

### Statistical analysis

IC50 data obtained was presented as Mean ± SEM. The difference between the control group and test extracts treated group was analyzed by employing one way ANOVA (Analysis of Variance).

## III. RESULTS AND DISCUSSION

### Phytochemical screening

Phytochemical studies have shown that major chemical components of *C.rotundus* petroleum ether extract showed the presence of triterpenes, saponins Volatile oils, Cyanidin, Flavonols, flavones, Leucoanthocyanins, Cardenolides, Carbohydrates and reducing compounds.and absence of tannins ,flavonoids, Flavonols, ,-Deoxy sugars, Alkaloids and Coumarins.

Chloroform extract showed the presence of triterpenes, saponins, tannins, Volatile oils, Cyanidin, Flavonols, flavones, Leucoanthocyanins, Cardenolides and Carbohydrates. explain absence of flavonoids, ,-Deoxy sugars, Alkaloids and reducing compounds .

Methanol extract showed the presence of triterpenes, saponins, flavonoids Volatile oils, Cyanidin, Flavonols, flavones, Leucoanthocyanins,-Deoxy sugars, Cardenolides, Alkaloids, Coumarins, Carbohydrates and reducing compounds and absence of tannins. The tannins were absence in all solvents table (1)following explain that.

Table [1] phytochemical screening of *C.Rotundus*

| NO | Teast of | Petroleum ether | Chloroform | Methanol |
|---|---|---|---|---|
| 1 | triterpenes | + | + | + |
| 3 | saponins | + | + | ++ |
| 4 | tannins | - | + | - |
| 5 | flavonoids | - | - | + |
| 6 | Volatile oils | + | + | + |
| 7 | Cyanidin | ++ | ++ | + |
| 8 | Flavonols | - | + | + |
| 9 | flavones | + | + | + |

| | | | | |
|---|---|---|---|---|
| 10 | Leucoanthocyanins | ++ | + | + |
| 11 | 2-Deoxy sugars | _ | _ | + |
| 12 | Cardenolides | + | ++ | + |
| 13 | Alkaloids | - | - | ++ |
| 14 | Coumarins | - | - | + |
| 15 | Carbohydrates | ++ | + | + |
| 16 | reducing compounds | _ | - | + |

*(+++) more amount, (++) moderate amount, (+) less amount, (-) absent*

Table [2] Phytochemical Screening of extracts from *C.Papyrus*

| NO | Teast of | Petroleum ether | Chloroform | Methanol |
|---|---|---|---|---|
| 1 | Triterpenes | + | - | + |
| 2 | Saponins | + | ++ | + |
| 3 | Tannins | - | - | + |
| 4 | Volatile oil | + | + | + |
| 5 | Cyanidin | + | - | + |
| 6 | Flavonols | + | + | + |
| 7 | flavones | + | + | ++ |
| 8 | Leucoanthocyanins | + | - | + |
| 9 | 2-Deoxy sugar | - | + | + |
| 10 | Cardenolides | ++ | + | ++ |
| 11 | Alkaloids | - | + | + |
| 13 | Coumarins | - | + | + |
| 14 | Carbohydrates | + | ++ | ++ |
| 15 | reducing compounds | + | _ | + |

Table(2)above explain result of Phytochemical studies have shown the major chemical components of *C. papyrus* petroleum ether extract showed the presence of Triterpenes, Saponins Volatile oil, Cyanidin, Flavonols, flavones, Leucoanthocyanins, Cardenolides, Carbohydrates, reducing compounds. and absence of Tannins, Deoxy sugar, Alkaloids and Coumarins.

Chloroform extract showed the presence of Triterpenes, Saponins, Volatile oil, Flavonols, flavones, Deoxy sugar, Cardenolides, Alkaloids, Coumarins and Carbohydrates.and absence of Tannins Cyanidin, Leucoanthocyanins, reducing compounds.

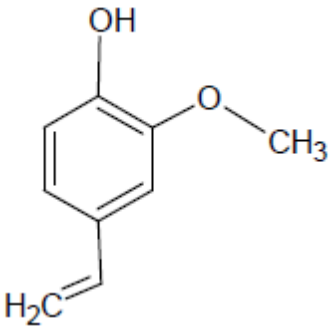
Methanol extract showed the presence of Triterpenes, Saponins Tannins, Volatile oil, Cyanidin, Flavonols, flavones, Leucoanthocyanins, Deoxy sugar, Cardenolides, Alkaloids, Coumarins, Carbohydrates, reducing compounds. According to this study *C.rotundus* share many components with *C.papyrus*.

**DPPH radical scavenging assay results**

The IC50 values of DPPH in the present study produced scavenging activity for all extracts ranked in the following order: 80% methanol extract of *C. papyrus* (EC50 = 89±0.03µg/ml) > 80% methanol extract of *C.rotundus* (88±0.05µ/ml) > chloroform extract of *C.rotundus*(EC50 24±0.03?g/ml) >chloroform extract of of C. papyrus (EC50 = 14±0.08 µ/ml >petroleum ether extract of . *C.rotundus* 11±0.05 µ/ml>petroleum-ether extract of of *C. papyrus*0.9±0.02 µ/ml, Table 3 explain the result of antioxidant activity present studyagreementwith that study. *C.rotundus* and *C.papyrus* showed antioxidant properties of DPPH chemical assays(Kakarla *et al.*, 2014).

Phenolics are the most wide spread secondary metabolite in plant kingdom. These diverse groups of compounds have received much attention as potential natural antioxidant in terms of their ability to act as efficient radical scavengers(Sivanandham *et al.*, 2007).

The results obtained in the present study indicated that both Cyperus rotundus rhizome and C.*papyrus* extracted from methanol extract contain a amount of phenols compounds fig (C) explain phenolic compound in *Cyperus rotundus***.**




Fig(C) 2.Methoxy-4-vinylephenol

Table [3]antioxidant activity result

| SOLVENT | *C.rotundus* EX.%RSA ±SD(DPPH) | *C. papyrus* EX.%RSA ±SD(DPPH) |
|---|---|---|
| **Petroleum ether** | 11±0.05 | 0.9±0.02 |
| **Chloroform** | 24±0.03 | 14±0.08 |
| **Methanol** | 88±0.05 | 89±0.03 |
| Stander Propyl gallate | 92±0.01 | 92±0.01 |

**Result of GCMS for methanol extracts from *C.rotundus*.**

Firstly extract of Methanol from *C.rotundus*. The components present in the methanol extract of *C.rotundus* rhizomes identified by GC-MS analysis (table 4).

The methanol extracts of *C.rotundus* rhizomes have identified by GC-MS analysis The active principles with their retention time (RT), molecular formula, molecular weight (MW), peak area has presented in the Table (4) GC-MS spectrums showed ten top highest molecular peak at 1-10. follow a molecular formulas of $C_5H_6O_2$ , $C_8H_{14}O$, $C_6H_8O_4$, $C_8H_8O$, $C_9H_{10}O_2$, $C_{15}H_{26}O$, $C_9H_{14}O$, $C_{15}H_{22}O$, $C_{15}H_{22}O$, $C_{12}H_{22}O_2$. following compounds have identified namely (1) 2-Cyclopenten-1-one, 2-hydroxy- (2) 3-Hexen-2-one, 3,4-dimethyl-3hexen-2-one (3)4H-Pyran-4-one, 2,3-dihydro-3,5-dihydroxy-6-methyl- (4) Benzofuran, 2,3-dihydro- (5) 2-Methoxy-4-vinylphenol (6)1H-Cycloprop[e]azulen-4-ol, decahydro-1,1,4,7-tetramethyl-, [1aR-(1a.alpha.,4.beta.,4a.beta.,7.alpha.,7a.beta.,7b.alpha.)]- (7) 3-Cyclohexen-1-carboxaldehyde, 3,4-dimethyl- (8) 5(1H)-Azulenone, 2,4,6,7,8,8a-hexahydro-3,8-dimethyl-4-(1-methylethylidene)-, (8S-cis)- (9) Longiverbenone (10) Cyclohexanol, 2-methyl-3-(1-methylethenyl)-, acetate.

Where methanol extracts of *C.papyrus* rhizomes have identified by GC-MS analysis, with their retention time (RT), molecular formula, molecular weight (MW) peak area % has presented in the Table (5) GC-MS spectrums showed ten top highest molecular peak % at 1-10.acording to retention time

follow. 3.281, 4.870, 5.221, 5.360, 6.232, 7.980, 12.890, 13.125, 14.430, 15.701,a molecular formulas of $C_5H_6O_2$, $C_6H_{10}O_2$, $C_8H_{16}O$, $C_6H_8O_4$,$C_8H_{14}O$, $C_6H_6O_3$, $C_{15}H_{22}O$, $C_{15}H_{22}O$, $C_{15}H_{22}O_4$ and $C_{16}H_{32}O_2$.respectvly, following compounds namely,(1) 2-Cyclopenten-1-one, 2-hydroxy- (2) 1,4-Dioxin, 2,3-dihydro-5,6-dimethyl- (3) 2-Heptanone, 3-methyl- (4) 2-Hexanone, 3-methyl-4-methylene (5) 4H-Pyran-4-one, 2,3-dihydro-3,5-dihydroxy-6-methyl- (6) 5-Hydroxymethylfurfural (7) Longiverbenone (8) 5(1H)-Azulenone, 2,4,6,7,8,8a-hexahydro-3,8-dimethyl-4-(1-methylethylidene)-, (8S-cis)- (9) 2-Acetoxy-1,1,10-trimethyl-6,9-epidioxy-.delta.7-octalin (10) n-Hexadecanoic acid.

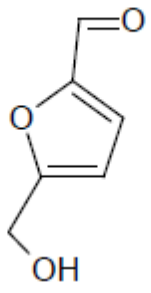
Table [4]GC-MS data for Methanol extract of *Cyperus rotundus* rhizomes.L

| S.No | Compound name | Molecular formula | Molecular weight | Retention time | % of peak area |
|---|---|---|---|---|---|
| **1** | 2-Cyclopenten-1-one, 2-hydroxy- | $C_5H_6O_2$ | 98 | 3.241 | 6.82 |
| **2** | 3-Hexen-2-one, 3,4-dimethyl-3hexen-2-one | $C_8H_{14}O$ | 126 | 5.378 | 9.95 |
| **3** | 4H-Pyran-4-one, 2,3-dihydro-3,5-dihydroxy-6-methyl- | $C_6H_8O_4$ | 144 | 6.246 | 11.90 |
| **4** | Benzofuran, 2,3-dihydro- | $C_8H_8O$ | 120 | 7.447 | 3.75 |
| **5** | 2-Methoxy-4-vinylphenol | $C_9H_{I0}O_2$ | 150 | 8.392 | 15.87 |
| **6** | 1H-Cycloprop[e]azulen-4-ol, decahydro-1,1,4,7-tetramethyl-,[1aR (1a.alpha.,4.beta.,4a.beta.,7.alpha.,7a.beta.,7b.alpha.)] | $C_{15}H_{26}O$ | 222 | 11.774 | 2.99 |
| **7** | 3-Cyclohexen-1-carboxaldehyde, 3,4-dimethyl- | $C_9H_{14}O$ | 138 | 12.085 | 7.66 |
| **8** | 5(1H)-Azulenone, 2,4,6,7,8,8a-hexahydro-3,8-dimethyl-4-(1-methylethylidene)-, (8S-cis)- | $C_{15}H_{22}O$ | 218 | 12.239 | 5.11 |
| **9** | Longiverbenone | $C_{15}H_{22}O$ | 218 | 12.881 | 3.17 |
| **10** | Cyclohexanol, 2-methyl-3-(1-methylethenyl)-, acetate, (1.alpha.,2.alpha.,3.alpha.)- | $C_{12}H_{22}O_2$ | 196 | 13.871 | 5.49 |

Table [5] GC-MS data for Methanol extract of *C. papyrus* rhizomes

| S.No | Compound name | Molecular formula | Molecular weight | RetentioR. time | % of peak area |
|---|---|---|---|---|---|
| **1** | 2-Cyclopenten-1-one, 2-hydroxy- | $C_5H_6O_2$ | 98 | 3.281 | 1.09 |
| **2** | 1,4-Dioxin,2,3-dihydro-5,6-dimethyl- | $C_6H_{10}O_2$ | 114 | 4.870 | 0.89 |
| **3** | 2-Heptanone, 3-methyl- | $C_8H_{16}O$ | 128 | 5.221 | 0.80 |
| **4** | 2-Hexanone,3-methyl-4-methylene- | $C_8H_{14}O$ | 126 | 5.360 | 4.90 |
| **5** | 4H-Pyran-4-one, 2,3-dihydro-3,5-dihydroxy-6-methyl- | $C_6H_8O_4$ | 144 | 6.232 | 13.78 |
| **6** | 5-Hydroxymethylfurfural | $C_6H_6O_3$ | 126 | 7.980 | 57.51 |
| **7** | Longiverbenone | $C_{15}H_{22}O$ | 218 | 12.890 | 4.64 |
| **8** | 5(1H)-Azulenone, 2,4,6,7,8,8a-hexahydro-3,8-dimethyl-4-(1-methylethylidene)-, (8S-cis)- | $C_{15}H_{22}O$ | 218 | 13.125 | 2.12 |
| **9** | 2-Acetoxy-1,1,10-trimethyl-6,9-epidioxy-.delta.7-octalin | $C_{15}H_{22}O_4$ | 266 | 14.430 | 0.87 |
| **10** | n-Hexadecanoic acid | $C_{16}H_{32}O_2$ | 256 | 15.701 | 1.16 |

The methanol extracts of *C.papyrus* rhizomes have identified by GC-MS analysis The active principles with their retention time (RT), molecular formula, molecular weight (MW), peak area has presented in the Table (4) GC-MS spectrums showed ten top highest molecular %peak area at 1-10. Follow a molecular formulas of $C_5H_6O_2$ , $C_8H_{14}O$, $C_6H_8O_4$, $C_8H_8O$, $C_9H_{I0}O_2$, $C_{15}H_{26}O$, $C_9H_{14}O$, $C_{15}H_{22}O$, $C_{15}H_{22}O$, $C_{12}H_{22}O_2$. following compounds have identified namely (1) 2-Cyclopenten-1-one, 2-hydroxy- (2) 3-Hexen-2-one, 3,4-dimethyl-3hexen-2-one (3)4H-Pyran-4-one, 2,3-dihydro-3,5-dihydroxy-6-methyl- (4) Benzofuran, 2,3-dihydro- (5) 2-Methoxy-4-vinylphenol (6)1H-Cycloprop[e]azulen-4-ol, decahydro-1,1,4,7-tetramethyl-, [1aR-(1a.alpha.,4.beta.,4a.beta.,7.alpha.,7a.beta.,7b.alpha.)]- (7) 3-Cyclohexen-1-carboxaldehyde, 3,4-dimethyl- (8) 5(1H)-Azulenone, 2,4,6,7,8,8a-hexahydro-3,8-dimethyl-4-(1-methylethylidene)-, (8S-cis)(9)Longiverbenone(10)Cyclohexanol,2-methyl-3-(1-methylethenyl)-, acetate. The high compound percent in *C. papyrus* extract 57.3% 5-Hydroxymethylfurfural in fig(C).




Fig(c) 5-hydroxymethylfurfural

## DISCUSSION

Medicinal plants are of great importance to the health of individuals and communities As all the plants are able to synthesize a multitude of organic molecules phytochemicals, they are referred to as "secondary metabolites(Singh and Sharma, 2015).According to this study *C.rotundus* and *C.papyrus* are rich source of secondary metabolites like alkaloids, steroids and flavonoids, which are potential source of drugs. Nearly one third of the pharmaceuticals are plant origin. In order to compare the chemical composition of the extracts of *C.rotundus* with that of other species of the same genus, we investigated two other plants. The first was *C. papyrus* collected from blueNile. Although this second plant *C.rotundus* collected from sinnar but share many components with *C.papyrus*, there were some differences which justified its investigation. The last extracts to be studied was that of *C.rotundus*. Previous studies on the plant extracts have shown that antioxidant activity of any herb is likely to be due to the presence of phenolic compounds in them, since their hydroxyl groups have significant scavenging ability. Results of the present study show that both samples of methanol extracts possess excellent antioxidant potential against free radicals like reactive oxygen species.

The DPPH free radical scavenging assay results represent a strong effect of the extract to scavenge free radicals. The percent scavenging activity of the extracts showed an increase with the subsequent increase in the polarity of the solvent. The methanol extract was more potent than the chloroform and petroleum ether of tow samples. Present study agree with study conducted by (Jeyasheela *et al.*, 2011). *C.rotundus* rhizomes extract exhibits free radical scavenging, reducing power and antioxidant activity .The present study agree with the earlier investigations done by few researchers (Hema *et al.*, 2013).Based on the results obtained it can be suggested that this herb can be used as potent natural antioxidant which may be helpful to prevent various degenerative diseases. Detailed in vivo experiments may help to prove above results, which are in progress.

In other study has demonstrated that *C.rotundus* extracts possess potent antioxidant activities, which could be derived from compounds such as flavonoids and phenols(Kilani-Jaziri *et al.*, 2011).In other study*C.rotundus* rhizomes extract exhibits free radical scavenging, reducing power(Bashir *et al.*, 2012)(Nagulendran *et al.*, 2007).The methanol extract was found to be most effective antioxidant agent as compared to others extracts.

## CONCLUSION

The present investigation shows that both extracts of rhizomes of *C.rotundus* and *C.papyrus* exhibits antioxidant and free radical scavenging ability which is more apparent in methanol extract of *C.rotundus*. These differences in activities may be due to dissimilarity in the phytoconstituents present in each extracts. The present study agree with the earlier investigations done by few researchers(Bashir *et al.*, 2012)(Nagulendran *et al.*, 2007).Based on the results obtained it can be suggested that this herb can be used as potent natural v which may be helpful to prevent various degenerative diseases. Detailed in vivo experiments may help to prove above results, which are in progress.

The extract obtained by soxhelt of rhizomes of *C.rotundus* and *C.papyrus* where analyzed by GC-MS analysis. Fifty five components of *C.rotundus* representing and fifty components of *C.papyrus* were identified. The main constituents where summaries in ten top according to peak area% of compounds and showed in table (4,5 ).

According to this study we can conclude from the results that the extraction from *C.rotundus* Rhizomes and *C.papyrus* which may account for some of the medical claims attributed to this plants and can be used as a source of antioxidant for pharmacological prepared. Present a extract of *C.rotudus* have compounds which needed to be isolated for characterization.

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