A REVIEW OF PHARMACOLOGICAL AND PHYTOCHEMICAL OVERVIEW OF CORN SILK AND CABBAGE

A. KEERTHANA[1], A.RICHITHA[2], G.MADHAVI[2], T KAVYA SREE[2], Dr.G.TULJARANI[3]*
1-Associate Professor, Malla Reddy Pharmacy College,Secunderabad, Hyderabad, Telangana.
2- Student, Malla Reddy Pharmacy College,Secunderabad, Hyderabad, Telangana.
3-Principal, Malla Reddy Pharmacy College,Secunderabad, Hyderabad, Telangana

***ABSTRACT:** Corn silk (Stigma Maydis) is an important herb used traditionally by the Chinese, and Native Americans to treat many diseases. It is also used as traditional medicine in many parts of the world such as Turkey, the United States, and France. Its potential antioxidant and healthcare applications as a diuretic agent, in hyperglycemia reduction, as an anti-depressant, and anti-fatigue use have been claimed in several reports. Other uses of corn silk include teas and supplements to treat urinary-related problems. The potential use is very much related to its properties and mechanism of action of its plant's bioactive constituents such as flavonoids and terpenoids. Cabbage is an important vegetable containing a considerable amount of water, protein, lipids, carbohydrates, fiber, vitamins, assorted minerals, phenols, and glucosinolates. As such, this Current review will cover the research findings on the potential applications of corn silk and cabbage in healthcare which include it's phytochemical and pharmacological.*
***Keywords:**Corn silk,Cabbage,pharmacological, and phytochemical*

I. INTRODUCTION

Around the globe, people eat vegetables from the Brassicaceae family, which is widely eaten. In Europe, Asia, China, and Japan, these plants are valued as major food crops(1). The fundamental building blocks of contemporary medicine are mostly derived from herbs, which have been used for ages to treat a wide range of ailments (2). Many traditional plants have medicinal properties because they contain natural antioxidants, particularly phenolic compounds(3). These substances can scavenge reactive oxygen species (ROS), which have been linked to several oxidative stress-related illnesses, including cancer, hypertension, and cognitive impairment. Many herbs and plants are used for their possible advantages in avoiding illnesses connected to oxidative stress and maintaining health to protect people from this kind of stress.

Pharmacological activities

Antioxidant activity: Corn silk extracts have been reported to contain flavonoids (approximately 59.65 mg quercetin per gram), polysaccharides (approximately 58.75% by weight), steroids (approximately 38.3 x 10^3 to 368.9 x 10^3 mg/mL), polyphenols (approximately 77.89 mg/GAE per gram), and other functional biological substances. This study aimed to investigate the antioxidant activity of corn silk extracts about their functional compounds.

The radical scavenging activity of corn silk extracts was assessed using the spin-trapping electron paramagnetic resonance (EPR) technique, 1,1-diphenyl-2-picrylhydrazyl (DPPH), 2,20-casino bis(3-ethylbenzo-thiazoline-6-sulfonate) (ABTS+), ferric ion-reducing antioxidant power, and copper ion reductive capacity. The results indicated that the maturity stage of CS plant materials and the extraction method used to obtain their bioactive compounds have a significant impact on their radical scavenging capacity.

samples varied based on their maturity stage. The milky stage (CS-M) had the weakest DPPH radical scavenging activity (59.20 ± 0.92%), followed by the silky stage (CS-S) (59.33 ± 0.61%), and the mature stage (CS-M) (65.20 ± 0.90%) demonstrated the strongest activity. Generally, the final maturity stage (CS-MS) exhibited the most potent antioxidant effect, followed by the earliest maturity stage (CS-S) and the second maturity stage (CS-M).

This study aimed to evaluate the different extraction procedures for bioactive substances from corn silk material at

various maturity stages. The focus was on identifying and quantifying flavonoids, steroids, and polysaccharides in the obtained extracts. The study also included the characterization of antioxidant and radical scavenging activity using selected physicochemical methods. The radical scavenging ability of the extracted substances was measured using EPR, DPPH, ABTS, and other antioxidant measurement techniques. The EPR spin-trapping method showed that the mature-stage CS extract (with 70% ethanol) had the highest radical scavenging ability, while the milky-stage CS extract had the lowest.

A similar trend was observed for DPPH and ABTS radical-scavenging activity measurements. Longer extraction times for all CS samples resulted in stronger ABTS radical-scavenging activity. The ferric ion and copper ion-reducing power were highest for the mature-stage CS extract and lowest for the milky-stage CS extract, consistent with the results found by the EPR spin-trapping technique, DPPH, and ABTS. The HPLC polyphenol analysis was performed concerning temperature, and a significant relationship between extraction temperature and the quantity of polyphenols obtained was found. The variations in CS antioxidant activity with increasing maturity stages can be explained by certain developmental and biochemical changes that occur in corn plants during the growth cycle. This variation should be considered when interpreting the results of antioxidant tests(4).

Antioxidant activity of corn When harvesting corn, corn silk is typically discarded as waste, even though it contains valuable compounds such as flavonoids, sterols, alkaloids, polysaccharides, organic acids, volatile oils, trace elements, and multivitamins. Not only does this practice harm the environment, but it also squanders valuable resources. In this paper, we will review the most common methods used to extract flavonoids from corn silk, including the reagent method, enzymatic method, microwave, supercritical CO2 extraction, ultrasonic, and microwave-assisted ultrasonic. Flavonoids are naturally occurring antioxidants with numerous applications, including scavenging free radicals, inhibiting bacteria, and regulating blood lipids. We will also compare the in vitro biological activities of flavonoids extracted from corn silk using different extraction methods.

An anti-oxidant Biologically active chemicals have a major impact on the physiological problems that arise from the biological activity process. This paper uses microwave, ultrasonic, and ethanol. Several extraction technologies, including supercritical fluid extraction, were evaluated as significant. Methods for removing corn silk's flavonoids. Numerous studies have demonstrated the possible advantages of ingested flavonoids against several significant risk factors.

Although in vitro and in vivo research are mostly focused on the potential mechanisms of acon of flavonoids, whic h provide a closer approach for the substantiation of these compounds' effects in humans, antibacterial, antidiabeti c, and antifatigue actions are also characterized.
Permit foods containing them to be claimed as having health benefits.

The biological properties of corn silk include antibacterial, antidiabetic, antioxidant, and antifatigue, as well as a few therapeutic uses. The link between corn flavonoids' structure and activity should be thoroughly investigated, and the benefits of many sciences should be applied to create a solid scientific foundation for the further creation of safe and efficient novel medications, as a foundation for the complete exploration and application of maize flavonoid resources(5).

During the metabolism of the human body, substances such as reactive oxygen species and free radicals with strong oxidizing properties will be produced. If these substances are not removed in time, they will cause damage to biological Membranes and cell functions and then cause aging, cardiovascular disease, and cancer. Antioxidants could scavenge free radicals, thereby reducing their harm to the human body However, due to the potential safety hazards of synthetic antioxidants, the development of low-toxic, safe, and efficient natural antioxidants has become a research hotspot.

In recent years, many researchers have found that flavonoids are important secondary metabolites that are widely present in plant tissues. Biological activities in vitro aroused the great interest of many researchers. At present, the main problems with the antioxidant activity of flavonoids are the low purity of the extracts and the low content of potent flavonoids. Flavonoids commonly found in plants are an indispensable part of the human diet, especially for compounds found in corn silk, which have antioxidant properties and potential health benefits and have attracted extensive attention. Corn silk, also named Maydis stigma (Zea mays hairs), which refers to the stigmas of

the maize female flowers, is frequently used in traditional Chinese herbal medicines. Corn silk is made from stigmas, the yellowish thread-like strands from the female flower of corn with various therapeutic values and no documented toxicity. Corn silk contains abundant flavonoids. The total amount of flavonoids varies greatly with the variety, and the content is from less than 0.1% to 3%.

Flavonoids show a variety of biological activities, such as antioxidant, antibacterial, antidiabetic, and ant fatigue, and also have some clinical applications. Microwave, ultrasonic, supercritical fluid extraction, and multiple extraction technologies were used to extract flavonoids effectively. Several flavonoids such as maysin, apigmaysin, 3-methoxymaysine, ax-4-OHmaysin, and isoorientin- 2″-O-a-L-rhamnoside have been isolated and identified from corn silk. To clarify the extraction method and chemical composition of flavonoids in corn silk, this paper systematically studied the chemical components of corn silk and its biological activities in vitro.

Therefore, impeding the activities of ACE would curtail the production of angiotensin II, resulting in the widening of the blood vessels and reduced blood pressure. Several approved medications have been identified as ACE inhibitors; these include captopril, Lisinopril and enalapril. Many of these drugs have been reported to adversely affect health upon long time in take therefore consumption of antioxidant rich food with ACE inhibitory activity might be considered as a potential dietary solution to the menace of high blood pressure(5).

Antihypertensive activities :

(*Maydisstigma"Zeamayshairs"*),anagriculturalwastefromtheharvestofsweetcorn,iswellknownforitsrichsource ofantioxidant.Studyhasalsoshownthatcornsilkexhibitpotassium-inducednatriuretic anddiuresis. Consideringits prospectiveusefulnessinthedevelopmentofnutraceutical products, itmayserveasadditionalsourceofincometofarmersandpositivelyimpacttheireconomiclivelihood.Inanothervein,l emonhasbeenreportedtopossessflavonoidswhichisresponsibleforitsantoxidativeandfreeradicalinhibitingaction s,capacitytocontrolenzymaticactivitiesandimpedecellpropagation.Auniquecomponentinlemon(potassium)has beenconnectedtothecontrolofbloodpressure.Infusionsfromherbsaremajorsourcesofphenoliccompoundswithant ioxidantandfreeradicalscavengingactivities;onthisaccount,theyattractrecentutilizationinfoodstuffandpharmac euticalindustries.Globally,theyrepresentthelargestpercentageofconsumeddrinkafterwater,consequently,differe ntherbsorherbcombinationsservingastherapeuticinfusionshavebeendeveloped.

Use ofArgentineanherbssupplementedwithlemonjuiceasprospectivenaturalantioxidantsandantihypertensive compoundsthatmaypossiblybeusedinpharmaceuticalandfoodindustries;inanotherstudy,somephenoliccompoun dsarethemainantioxidantpresentinIndonesianCinnamonbark.Studiedtheinfluenceoflemonadditionsontheantiox idantactivityof tea, while the study of provided a valid evidence to support the existence of a boostingeffectbetweenblackteaandsomesupplementedherbs(lemon)usedtoprepareinfusion.Reportedthatcornv arietiessignificantly influence the phytochemical and radical scavenging activitiesof corn silk on corn silk flavonoids as valuable natural foodantioxidants. The studies have revealedcorn silk as a suitable ingredient in the formulation offunctionalfood.However,thereisdearthofinformation on the antioxidant and antihypertensive activities of infusion prepared from the blend of corn silk and lemon(6).

Antidiabeticandhypolipidemic: Zea*mays*L.(Family:Poaceae)alsoknownascornormaize,isalargegrainplantfirstme sticatedbyindigenouspeopleinMexicoabout10,000yearsago.Itisanannualgrassplantcultivatedforhumanconsumptionandr earingofanimals.ItwasintroducedtoNigeriainthe16thcentury.Besidesitsnutritivevaluesofmaizegrains,theleaves,cornsil ks,stalk,andinflorescencearealsousedinethnomedicineforthetreatmentofseveralailments.Thecorn silk is used as an antidiabetic or diuretic, and decoctionofthesilkisconsumedforthetreatmentofurinarytroubles andgallstones. Traditionally corn silk was used in many parts of theworld for the treatment of cystitis, gout, kidney stones,malaria,prostatehypertrophy,and nephritisandheartdisorders.

Secondarymetaboliteslikeflavonoids,saponins,alkaloids,tannins,chlorogenicacid,allantois,andphytosterolsaswella sflavonoidssuchasmaysin,apigmaysin,3-methoxymaysineandax-4-OH-maysinhavealsobeenidentifiedfromcornsilk. Biologicalactivitiesinclude ant oxidative diuresis and kaliuresis effect, hyperglycemic effect, nephroprotective activity,antifatigue,antidepressantactivity,antihyperlipidemicactivity,antidiabeticeffectsAnti-inflammatoryactivity,antitumor,hepatoprotective,antioxidantanticancer α-amylase inhibitory effect. Antidiabeticandhypolipidemicactivities. Inthis study, we report the anticonvulsant activity of the corn silkextractand fractionsof*Zea mays* (7).

Effect of corn silk on blood Oneoftheplantscurrentlyknowntobe able to be used as traditional medicine to decrease cholesterol level in the blood is corn (*Zeamays*),namelyonthepartofthecornsilk. Corn silk is by-product or

waste commonly used as traditional medicine such as urine laxative and blood pressure reducer which contains bioactive compounds such as volatile oils, steroids, alkaloids,tannins,flavonoids,chlorogenicacid and other phenolic compounds containing protein, carbohydrates, minerals (Ca, Mg, Cu, Zn, Fe andMn),highcrudefiber,Bvitamins,C vitamins, K vitamins, steroids such assit sterol and stigma sterol, alkaloids, saponins, tannins, flavonoids, anthocyanins, protonate in, vanillic acid, derivatives hesperidinandquercetinphenols, terpenoids and glycosides maysin, β-carotene, beta-sitosterol, geraniol, hordenine, limonene, menthol and also source of polyphenol that is good as antioxidant explains that corn silk contains water9.65%,protein17.6%,fat0.29%,ash 3.91%andcrudefiber 40%. The solvents often used for the extraction of flavonoids are methanol, ethanol, acetone and ethyl acetate.

Theresults showed that thehighestinhibitionactivitywasintheactive component of corn silk which were purified with 50% ethanol with the inhibition activityof 69.90%±1.27%. Extracted antioxidant components from corn silk by using methanol and water with several polyphenols in the extracts of methanol and water respectively were 272.81 mg GAE/100 g and 256.36 mg GAE/100 mg (dry). While the research results stated that acetone was themost effective solvent to extract the antioxidants from foxtail millet (a kind of cereal) compared to water solvent, ethanol, propanol, and methanol. A combination solvent of ethyl acetate: water (85:15, v/v) generated total flavonoids figure is four times larger than the solvent acetone in the extraction of organic compounds from grape seeds chose methanol 70% (v/v), with a ratio of 10:1 (v/w) of the material for the purpose and the same material.

The reason for separation of extraction with solvent was the difference in the solubility of eachcomposition in compaction with solvent. This solubility was influenced by temperature, stirring speed, the extraction time, the wideof tangent plane solids with solvent and extraction frequency. According to several factors that contribute the rate and quality of extraction on bioactive compounds component ofphenol compound namely the type of solvent extraction, solvent concentration, and particlesize, and temperature, pH and extraction time. Shaker (extraction), Whatman filter paper no.1, rotary flash evaporator, Folin-Ciocalteu colorimetric and some glass tools for analysis. The raw material in this study was sweet corn silk at the age of 80±90 days obtained from Pati, Central Java. The solvents used in this study were water, methanol, ethanol, ethyl acetate, and acetone (8).

Anti-inflammatory effects of Cabbage, scientifically known as Brassica oleracea var. capitata L., is a globally prevalent vegetable. Its high content of flavonoids and anthocyanins has long been utilized in herbal medicine. Additionally, recent research has highlighted its antioxidant and anti-inflammatory properties. The primary objective of this study was to examine the anti-inflammatory effects of cabbage in a mouse model of contact dermatitis (CD). The study assessed the impact of the methanol extract of B. oleracea var. capitata L. (MEBO) on ear swelling, erythema, and Histopathological changes in CD mice. Furthermore, the study investigated the effects of MEBO on cytokine production and the spleen/body weight ratio.

In this study, we demonstrated that the use of MEBO led to a reduction in Th1-skewed reactions such as the production of TNF-α, IFN-γ, and MCP-1, which resulted in decreased epidermal hyperplasia and immune cell infiltrations. Consequently, MEBO's anti-inflammatory effects led to the inhibition of ear swelling and erythema. Notably, the effects of MEBO were comparable to or slightly weaker than those of dexamethasone, and no general immune suppression was observed in the dexamethasone-treated group. Taken together, these findings suggest that MEBO can be used as a relatively safe alternative to corticosteroids(9).

Gastrointestinal activity of Cabbage (*Brassica oleracea* var. capitata L.), which belongs to the familyBrassicaceae, is one of the most common vegetables grown worldwide.Cabbage is often referred to as green cabbage to distinguish it from redcabbage,whichhasthesamescientificname.Duetoitsantioxidantand anti-inflammatory properties,cabbage has been widely used asan herbal medicine to treat gastrointestinal disorders such as gastritis,peptic and duodenal ulcers, and irritable bowel syndrome, as well aswoundsandmastitis. Manypeoplehavebelievedcabbagecanamelioratevariousskinailmentssuch as xeroderma, skin troubles, and acne. In the theory of traditionalmedicine, malfunction of gastrointestinal tract is closely related in skinproblems. Inaddition,cabbageisrecognizedasgoodsupplementfor both gastrointestinal disorders and skin problems in Korea. For thisreason, Korean people have used cabbage to improve skin ailmentsthroughameliorationofgastrointestinalmalfunctions.Furthermore,grated cabbage is used as ingredient of face mask and its usages are easilyfoundonwebsites .(10)

Cardiovascular diseases and Anticancer activity of Cabbage (Brassica oleracea) belongs to the Brassicaceae family and comprises eight distinct cultivar groups, all descended from wild cabbage (B. oleracea var. oleracea).

Epidemiological studies have shown that the consumption of Brassica vegetables reduces the risks of cardiovascular diseases and cancer and is reported to have a cytoprotective effect against tissue damage associated with oxidative stress as well as antimicrobial activity against bacterial and fungal pathogens.

Brassica vegetables are unique in comparison to other vegetables because they contain the enzyme myrosinase and a group of thioglucosides called glucosinolates (GSLs). GSLs are Sulphur and nitrogen containing biologically active secondary metabolites found in plants of the order Capparales, which includes the Brassicaceae family and other economically important agricultural crops. In plants, GSLs act as plant defense mechanisms against stress, insect, and pest attack. GSLs have been grouped into three main classes based on the structure of their different amino acid precursors; these groups are aliphatic, aromatic and indole GSLs. Aliphatic GSLs are derived from alanine, leucine, isoleucine, methionine or valine; aromatic GSLs are from phenylalanine or tyrosine, while tryptophan- derived GSLs are called indole GSLs.

GSLs and myrosinase enzymes coexist in separate compartments in the plants; while glucosinolates exists in the vacuoles of various cells, myrosinase enzymes are localized inside the myrosin cells. When plant tissue is disrupted, GSLs are hydrolyzed by plant myrosinase enzymes, resulting in the formation of various hydrolysis products such as isothiocyanate (ITCs), thiocyanates, nitriles and epithionitriles. The extent of glucosinolate hydrolysis and the type of hydrolysis compound produced is dependent on a number of factors, which include coexisting myrosinase enzyme, presence of epithiospecifier protein (ESP), ascorbic acid, Fe2+ and MgCl2, structure of the glucosinolate side chain, the plant species, as well as reaction conditions such as pH and temperature.

ITCs, the primary products of GSL hydrolysis from myrosinase, are responsible for the well-documented health-promoting properties of Brassica vegetables, such as reduced risk of cardiovascular diseases (CVD) and cancer. For example, sulforaphane (SFP), the hydrolysis product of glucoraphanin present in high concentrations in broccoli and cabbage, has been reported to possess chemo protective, antimicrobial, anti-inflammatory, and antithrombotic properties. Allyl isothiocyanate (AITC), another common ITC present in cabbages and produced upon myrosinase hydrolyses of the glucosinolates sinigrin (SIN), was reported to be potent against human breast cancer cells, human erythroleukemic K562 cells, and more potent on human A549 and H1299 non-small cell lung cancer cells in vitro than 2-phenylethyl-ITC (PEITC; ITC from gluconasturtin). However, in the presence of epithiospecifier proteins (ESPs), nitriles and epithionitriles (EPTs), which have not been shown to proffer any beneficial characteristics for health, are formed. GSLs and ITCs are also partly responsible for the bitter taste and pungent aromas of Brassica vegetables, which limits consumer acceptance and liking of Brassica vegetables.(9).

Antibacterial properties of Cabbage (Brassica oleracea var. capitata L.) is the fifth most important vegetable crop belonging to the family Cruciferae, and it is a biennial crop with overlying leaves from a compact head. Brassicaceae is an important and highly diversified group of crops grown worldwide. The beginning of cabbage was in Western Europe and the North Sea shorelines of the ocean, and it was domesticated and used for human consumption from the earliest antiquity. It is a cool-season crop that is popular with commercial producers.

However, it can be cultivated anywhere in the world for use in fresh and processed forms. Additionally, cabbage is a known vegetable crop worldwide because of its Adaptability to a wide range of climate and soil conditions. Ethiopia has appropriate edaphic and climatic conditions to produce cabbages. Cabbage prefers light sand to heavier clay soils with high organic matter content.

The ideal soil pH ranges from. In soils with a pH above the leaves become dark, and the edges of the leaves die. Cabbage demands even moisture to produce good heads, and it requires 380 to 500 mm depending on the climate and length of the growing season. Due to its anti-oxidant, anti-inflammatory, and anti- bacterial properties, cabbage is broadly utilized in conventional medicine to alleviate signs and symptoms related to gastrointestinal disorders. Nutritionally, 1 cup of un-cooked cabbage consists of 93% water and is a great supply of nutritional fiber and nutrients(11).

Antioxidant properties of cabbage Cabbage (Brassica oleracea L. var. capitata) is one of the most important vegetables grown worldwide. It belongs to the family Cruciferae, which includes broccoli, cauliflower, and kale. The different cultivated types of cabbage show great variation in respect of size, shape and color of leaves as well as the texture of the head. Approximately 6.3 kg of Brassica vegetables are consumed per person annually is consumed either raw or processed in different ways, e.g., boiled or, fermented or, used in salads. Due to its antioxidant, anti-inflammatory and antibacterial properties, cabbage has widespread use in traditional medicine, in alleviation of symptoms associated with gastrointestinal disorders gastritis, peptic and duodenal ulcers, irritable bowel syndrome) as well as in treatment of minor cuts and wounds and mastitis.

Fresh cabbage juice, prepared either separately or mixed with other vegetables such as carrot and celery, is often included in many commercial weight-loss diets Clinical research has shown positive effects of cabbage consumption in healing peptic ulcers and facilitating the reduction of serum LDL levels Chemical components analysis has shown that the main constituents of cabbage are carbohydrates, comprising nearly 90% of the dry weight, where approximately one third is dietary fiber and two thirds are low-molecular- weight carbohydrates (LMWC).

Other characteristic components are glucosinolates. Interest in the role of free radical scavenging-antioxidants in human health has prompted research in the fields of horticulture and food science to assess the antioxidant phytochemicals in fruits and vegetables. Some studies have been conducted to quantify the phenolic compounds, carotenoids, vitamin C, and antioxidant potential. The antioxidant properties were tested in many studies by using different approaches. The content of antioxidants depends on a lot of factors, especially on cultivars, stage of maturity and growing conditions.

These antioxidants exist in nature in combination, and in combination they certainly cooperate on total antioxidant activity. The functional quality and antioxidant constituents of cabbage heads are strongly influenced by environmental factors and genetics. The ferric reducing antioxidant power (FRAP), Troloxequivalentantioxidantcapacity(TEAC)andFree radical scavenging activity (DPPH) assays are thethree most frequently used for assessing the antioxidantactivities.

Different botanical compounds gained attention astherapeutic agents that relieve pain and inflammation. Thepresentstudy,thereforeaimstodeterminethetotalantioxidant, flavonoid and phenol levels, and measurethe antioxidant and anti-inflammatory activities such as(FRAP),(TEAC),(DPPH),Cellviability(MTT)andNOproduction.Resultsfromthisstudywillaidtheprogramofselectinguniquecabbagevarietiesforimprovednutritionalvalueandwillprovideinsightintothemechanismsoftheantioxidantandanti-inflammatory. Determinedbyphosphomolybdatemethodusingascorbicacid as a standard. An aliquot of 20µl of sample solution was mixed with 0.2 ml of reagentsolution(0.6Msulphuricacid,28mMsodiumphosphateand4mMammoniummolybdate).Thetubeswerecappedandincubatedinawaterbathat95°Cfor90min.After the samples had cooled to room temperature, theabsorbanceofthemixturewasmeasuredat695nmagainsta blank. The results were expressed as µg of ascorbicacid equivalent (AAE) per mg of the dried weight of thesample, as determined from the equation of the standardcalibration curve (12).

II. CONCLUSION

This review provides an insight into different regeneration and transformation studies in cabbage and corn silk. Based on the literature data the activities and functions of corn silk and cabbage on several diseases were discussed, which include antioxidant activity, Anti-inflammatory, Antihypertensive, Antidiabetic, hypolipidemic, Antibacterial, Gastrointestinal activity, cardiovascular diseases and Anticancer activity. In conclusion, several studies have demonstrated the therapeutic potential of corn silk extract and cabbage.

REFERENCES

1. Fernandes DL, Hedge K, Shabaraya A. Scientific Approaches on Red Cabbage: a Review. Int J Pharma Chem Res I [Internet]. 2019;5(3):123–30. Available from: www.ijpacr.com
2. Wan Rosli, W.I. N, A. R. F, Ghazali. C, Mohsin SSJ. Annals of Microscopy . Vol 10: 4-10. Ann Microsc Vol 10 [Internet]. 2010;10:4–10. Available from: http://eprints.usm.my/32943/1/Wan_Rosli_Submit_to_Annals_muha_1.pdf
3. Liu J, Wang C, Wang Z, Zhang C, Lu S, Liu J. The antioxidant and free-radical scavenging activities of extract and fractions from corn silk (Zea mays L.) and related flavone glycosides. Food Chem [Internet]. 2011;126(1):261–9. Available from: http://dx.doi.org/10.1016/j.foodchem.2010.11.014
4. Lapčík L, Řepka D, Lapčíková B, Sumczynski D, Gautam S, Li P, et al. A Physicochemical Study of the Antioxidant Activity of Corn Silk Extracts. Foods. 2023;12(11).
5. Tian S, Sun Y, Chen Z. Extraction of Flavonoids from Corn Silk and Biological Activities in Vitro. J Food Qual. 2021;2021.
6. Rabi OO, Omoba OS, Aderonke Ibidunni O. In vitro antioxidants and antihypertensive properties of corn silk–lemon infusion. Bull Natl Res Cent. 2022;46(1):1–14.
7. Okokon JE, Davies K, Nyong EE, Udoh AE. Anticonvulsant activity of corn silk (Stigma maydis). J basic Pharmacol Toxicol. 2018;6–10.
8. Haslina H, Eva M. Extract Corn Silk with Variation of Solvents on Yield, Total Phenolics, Total Flavonoids and Antioxidant Activity. Indones Food Nutr Prog. 2017;14(1):21.
9. Singh J, Inbaraj BS, Kaur S, Rasane P, Nanda V. Phytochemical Analysis and Characterization of Corn Silk (Zea mays, G5417). Agronomy. 2022;12(4):1–13.
10. Al-Oqail MM, Al-Sheddi ES, Farshori NN, Al-Massarani SM, Al-Turki EA, Ahmad J, et al. Corn Silk (Zea mays L.) Induced Apoptosis in Human Breast Cancer (MCF-7) Cells via the ROS-Mediated Mitochondrial Pathway. Oxid Med Cell Longev.

2019;2019.
11. Gelaye Y, Tadele E. Agronomic Productivity and Organic Fertilizer Rates on Growth and Yield Performance of Cabbage (Brassica oleracea var. capitata L.) in Northwestern Ethiopia. Sci World J. 2022;2022.
12. Rokayya S, Li CJ, Zhao Y, Li Y, Sun CH. Cabbage (Brassica oleracea L. var. capitata) phytochemicals with antioxidant and anti-inflammatory potential. Asian Pacific J Cancer Prev. 2013;14(11):6657–62.