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A Review: Polyherbal Antacid

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Abstract: ***A chemical called an antacid is used to treat heartburn, indigestion, and upset stomach by neutralizing stomach acidity. Compared to single-herb formulations, polyherbal antacids have gained popularity because of their recognized safety and potential synergistic effects. Herbal medicine is an alternative medical practice that uses natural plants and their extracts to heal illnesses. A medical condition knownasacidity isbroughtonby anexcessof acidproduction. The gastric glandsinthe stomach create this acid. It results in symptoms like dyspepsia, stomach ulcers, heartburn, and gastric inflammation. An imbalance between the stomach's and the proximal intestine's acid-secreting mechanisms causes acidity, a worldwideproblem. Reliefisprovidedbypolyherbalantacids.Manypeopleexperienceproblemsintheirlives as a result of acidity. The many polyherbal antacids used to treat gastric acidity are covered in this review article. The usage of polyherbal antacid is widespread worldwide. Herbal medicine uses natural plants and their extract to treat a variety of ailments instead of using prescription drugs. The purpose of this work is to assert that the polyherbal antacid formulations can be used as a substitute for the antacid formulations that are currently on the market. Numerous polyherbal formulations for treating stomach acidity are included in this study, together with information on their therapeutic potential, safety, efficacy, and preclinical and clinical results.***

Keywords: ***Acidity,Antacid,gastricacidity,stomachglands,antacidformulations,herbal,betterthan conventional, safety and efficacy, global issue***.

I. INTRODUCTION

The stomach's production of acid breaks down food during digestion. Anger, stomach lining heartburn, gastrointestinal distress, and discomfort are all brought on by the stomach's overproduction of acid. The pH of stomach acid ranges from 1.5 to 3.5. Digestive enzymes that are readily triggered by stomach acid can break down long-chain amino acids. Pharmaceutical formulations known as polyherbal antacid dosage forms are intended to neutralize excess stomach acid and relieve the symptoms of heartburn and acidity. They usually include a blend of herbal substances with antacid qualities that have been carefully chosen and prepared to effectively relieve gastric discomfort. By combining several herbs, these formulations seek to improve their effectiveness through synergistic effects, providing a comprehensive approach to digestive health. Because of their natural constituents and perceived safety, polyherbal dosages are becoming more and more popular as an alternative to traditional antacids. Antacids work by neutralizing stomach acid and preventing the proteolytic enzymepepsinfromworking. Theuniquepharmacological characteristicsofeach ofthesecationicionsdictate their therapeutic application. The following are some therapeutic uses for antacids. Treating of heartburn in GERD[1-2].

II. COMMON ACIDITY SYMPTOM

Heartburn, stomach bloating, nausea, regurgitation, and sore throat are the most prevalent symptoms of the acidity disease. Additionally, there have been cases of stomach ulcers, inflammation, and indigestion. Some conditionscancauseexcessivevomiting, difficultyswallowing,andaburningfeelinginthestomachandthroat. A number of conditions can also cause discomfort in the abdomen and chest. These are the common signs of acidity, and they might change depending on the person's diet. Preventive methods include following the right healthy eating pattern, which includes consuming the right amount of protein, avoiding fizzy drinks, and avoiding meals that are greasy and hot[3].

III. CAUSES OF ACIDITY

Excessive acid production results in acidity. Sometimes the stomach glands produce more acid than normal to finishthedigestionprocess.Thebodyexperiencesburningandacidity.Themaincausesofacidityincludestress and obesity, a lack of physical activity, irregular and poor eating patterns, eating hot and greasy food, and leading an unhealthy lifestyle that includes smoking and drinking alcohol, as well as regularly reclining down after eating. Additionally, some drugs, such as aspirin, can make you more acidic[4].

IV. TYPES OF ANTACIDS COMMONLY USED

Sodiumbicarbonate,calciumcarbonate,and aluminiumhydroxidearecommonantacids.Thesecompounds relieve indigestion and heartburn by neutralizing stomach acid.

Anantacidthatisfrequentlyusedtotreatheartburnandindigestionisaluminium hydroxide.

Strongantacidcalciumcarbonatecanimmediately neutralizestomachacid,butprolongedusecancausecalcium overload. Among the other antacids are magnesium carbonate, magnesium trisilicate, and a mixture of magnesium hydroxide and aluminium hydroxide.

Therearethreetypesofantacids:complicated,non-systemic,andsystemic[5].

V. RISK FACTORS OF ACIDITY

Unhealthy lifestyle, use of tobacco and alcohol, and intake of foods high in fat, spice, and oil. Stress and inactivity.Moreover,somecontributeto acidity.Becausetheyneutralizeacid,antacidsproviderelief.Youcan buy certain antacid tablets over-the-counter [6].

VI. MEDICATION SUSED

Neutralizationistheprocessbywhichanacidandabasereact.Antacidsfunctionbycounteractingthe stomach's acid. Its primary function is pain relief from pylorospasms.

The primary purpose of proton pump inhibitors is to reducegastric acidity. They function by preventing the stomach'sacid-producingenzymefromfunctioning.Theyareprodrugsthatrequirestomachacidtoactivate. The first PPIs to receive a license for use were omeprazole, lansoprazole, rabeprazole, esomeprazole, pantoprazole, and dexlansoprazole [7].

VII. POLYHERBAL FORMULATION

Formulations containing two or more herbs are referred to as polyherbal formulations. The two pillars of Ayurvedic medicine are the use of multiple drugs and the use of a single medicament. The final formulation is known as a polyherbal formulation. Botanical remedies that combine multiple botanical extracts are seen as more thorough in the Indian traditional medical system. It is also common knowledge that a wide range of Ayurvedic polyherbal medicines are accessible upon request. Several pharmacological, toxicological, and phytochemical standardization procedures are required to produce safe polyherbal formulations. In Asia and Europe,herbaltreatmentsbecamemoreand morepopular.Between 468 and377 B.C.,theGreeksareknown to have learned about it. Around 100 B.C., the Greeks told the Romans about it. When the Roman Empire collapsed in the fifth century, the Islamic world learned about and started applying this technology. By the eleventh century, theAnglo-Saxon civilization was practicing and documenting herbal science. The majority of herbalpracticesduringtheMiddle Ageswerecontrolledbythechurch, whichalsoretained therighttocultivatemedicinalherbsandcreatenewherbalremedies.Churchinfluenceoverherbalismpersistedeventhoughseveral medical schools were established in the later Middle Ages[8].

VIII. MECHANISM OF ACTION OF ANTACID

Polyherbalantacidsworkthrough:

1) AcidNeutralization:Herbswithalkalinequalities,suchasGinosporacordifolia(giloy)andGlycyrrhiza glabra (liquorice) [10], are the mechanism by which polyherbal antacid's function.
2) MucosalProtection:Thegastriclining isshieldedbyacoatingofslipperyelmandaloevera[11].
3) Anti-inflammatory&AntioxidantEffects:Ginger(Zingiberofficinale)andturmeric(Curcumalonga)both lessen inflammation [12].
4) Prokinetic&DigestiveEffects:Coriander(Coriandrumsativum)andfennel(Foeniculumvulgare)improve digestion and lessen bloating [13].

IX. COMMON HERBSUSEDIN POLYHERB ALANTACID

1) Glycyrrhizin,foundinliquorice(Glycyrrhizaglabra),calmsthestomachandaidsinhealing.
2) AloeVera:Promotesmucosalhealingandlessensstomachirritation[11].
3) VitaminC-richamla(Emblicaofficinalis)aidsinthehealingofulcers.
4) Shatavari(Asparagusracemosus):Thisadaptogenandnaturalantacid[14].
5) Turmeric(Curcumalonga):antibacterialandanti-inflammatory.
6) Ginger(Zingiberofficinale):Enhancesdigestionandlessensnausea.

X. BENEFITS OF POLYHERBAL FOR MULATIONS OVER SINGLE HERBS

Polyherbal blends are more beneficial than using a single plant because of their synergistic effects. Both the number of doses and the severity of the adverse effects decreased with the advent of polyherbal combinations. Limitingtheamountof medicationgiven atonceincreasespatientconvenience.Evenwhileseveralplantshave a lengthy history, their active phytochemical components are rarely enough to have the desired therapeutic effects and are typically only found in trace amounts. Therefore, research has shown that combining these different plants with different potencies may yield better outcomes than using them separately or summing up their different effects. Synergism is the term used to describe this beneficial herbal interaction. The pharmacological effects of the active ingredients in some herbal treatments are negligible when taken alone; they only become apparent when combined with those of other plants [16].

XI. HERBAL INGREDIENTS

1) CUMIN: Jeera, Camino are synonyms Nameinscience:Cuminumcyminum The Apiaceae family Chemical components: tannin, saponin, protein resin, and alkaloids Advantagesofcumin:•Promotesdigestion;•Enhancesdigestive health[17]
2) Zingiber is another name for ginger. Zingiberofficinaleisitsscientificname. Zingiberaceae family Chemicalcomponents: gingeriscomposedof56%carbohydrateandprotein,5%to8%resinousmaterials and 0.25 to 3% volatile oil.Ginger'sadvantagesinclude: •Betterdigestion[18]
3) ASAFOETIDA:Alternatives:Hing Name in science: Devil's dung Apiceae is the family. Chemicalcomponents:67.8%of100gramsarecarbs Advantages of asafetida Treatgastrointestinaldis comfort;curestomachissues [19]
4) LIQUORICE:Scientificname:Glycyrrhizaglabra;synonyms:Glycyrrhiza,liquoricerootFabaceaefamilyChemicalcomponents:sucrose,glucose(upto4%),andglycyrrhizin/glycyrrhizaacidBetween2.5and6.5%AdvantagesofliquoriceEnhancethestomach'sbloodflow;inhibitthebody'sgenerationofgastrintostopulcersfromdevelopinginthe first place [20].

XII. TYPES OF POLYHERBAL ANTACID

Dry,powderedformulationsknownaschurnarefrequentlyingestedbycombiningthemwithliquidslikewater. Syrups (Avaleha): These are easily ingested liquid formulations that are frequently sweetened.
Tablets:Foron-the-gorelief,thesesturdy,portableformsarepractical.
Herbalinfusions,orkadha,aremadebyboilingherbsinwaterandaretypicallydrunkhot.
Otherforms:Chewablepills,lozenges,andevencertainflavour-specificliquidpreparationsareothertypesof polyherbal antacids [21].

XIII. FORMULATION TECHNIQUES OF POLYHERBAL ANTACID

1) Selecting and Extracting Herbs: Select herbs with antacid and anti-ulcer activity, such as Terminalia Chebula, Terminalia belerica, and Emblica officinalis, which are traditionally used for their antacid qualities. Extraction:Toproduceconcentratedherbalextracts,usesuitableextractiontechniques,suchasmacerationwith alcohol, followed by filtration and evaporation.
2) Making Powder: Manufacturing of Powder: Using a mesh size (e.g., 120#), grind the herbs into a fine powder. Mixing: To guarantee even distribution, mix the powdered herbs and/or extracts in predetermined ratios,frequentlywithamortar.
   DevelopmentandAssessment: MakingSuspensions:Combinetheherbal powder and/or extracts with the appropriate additives and suspending agents to create antacid suspensions.
3) Formulation and Evaluation: SuspensionPreparation:Combinetheherbalextractsand/orpowderwiththe appropriate additives and suspending agents to create antacid suspensions.
   Tablet/CapsuleFormulation: Toguaranteestability,bioavailability,andpalatability,takeintoaccounttabletor capsule formulations that use excipients such as binders, fillers, and disintegrants.
   Evaluation: Tomakesurethefinishedproductsatisfiesqualitystandards,doqualitycontroltests,suchas examining pH, acid neutralizing capacity, and stability.
4) Uniformity: Standardization Determinethephytochemicalcompositionoractivecomponentsoftheherbalextractsorpowdersto standardize them.
   QualityControl: Usequalitycontrolprocedurestoguaranteethefinalformulation'spurityandconsistency.

5) AdministrationandDosageForms:
DosageForms:Considerdifferentdosageforms,suchaspills,capsules,powders,andsuspensions.
Administration:Consideringtheparticularformulationandtargetgroup,giveprecisedosageandadministration instructions.

6) Herb-DrugInteractionsandSafety:
Safety:Evaluatethepossibilityofsideeffectsanddrug-herbinteractions.
Regulation-RelatedConsiderations:Observetheapplicablelegalrequirementsforherbalitems[22].

XIV. EVALUATIONPARAMETER

1) Determinationofparticlesizeand form
2) Thesurfacearea
3) Density Granulardensity,truedensity,andbulkdensity
4) Friabilityandgranulestrength
5) Hausner'sratio,flowcharacteristics,angleofrepose,andpercentagecompressibilityindex
6) Theamountofmoisture

XV. FUTURE PERSPECTIVE OF STUDY

Growing consumer inclination toward chemical-free, herb-based treatments rather than artificial antacids. Growing knowledge of the negative effects of long-term synthetic drug use. Additionally, additional clinical studiesareneededtoconfirmthesafety, effectiveness,andpotencyofpolyherbalantacids.Forimprovedaction and efficacy, polyherbal formulations are preferred over single herb formulations.

XVI. CONCLUSION

The potential of plant extracts as antacids is the main focus of this investigation. One significant type of over- the-countermedicationsthatareregardedasbothsafeandefficientareherbalantacids.Thecreatedpolyherbal antacid exhibits great promise as a natural substitute for prescription antacid drugs. To guarantee long-term safety and effectiveness, future research should place a high priority on standardizing herbal formulations and conducting comprehensive clinical studies

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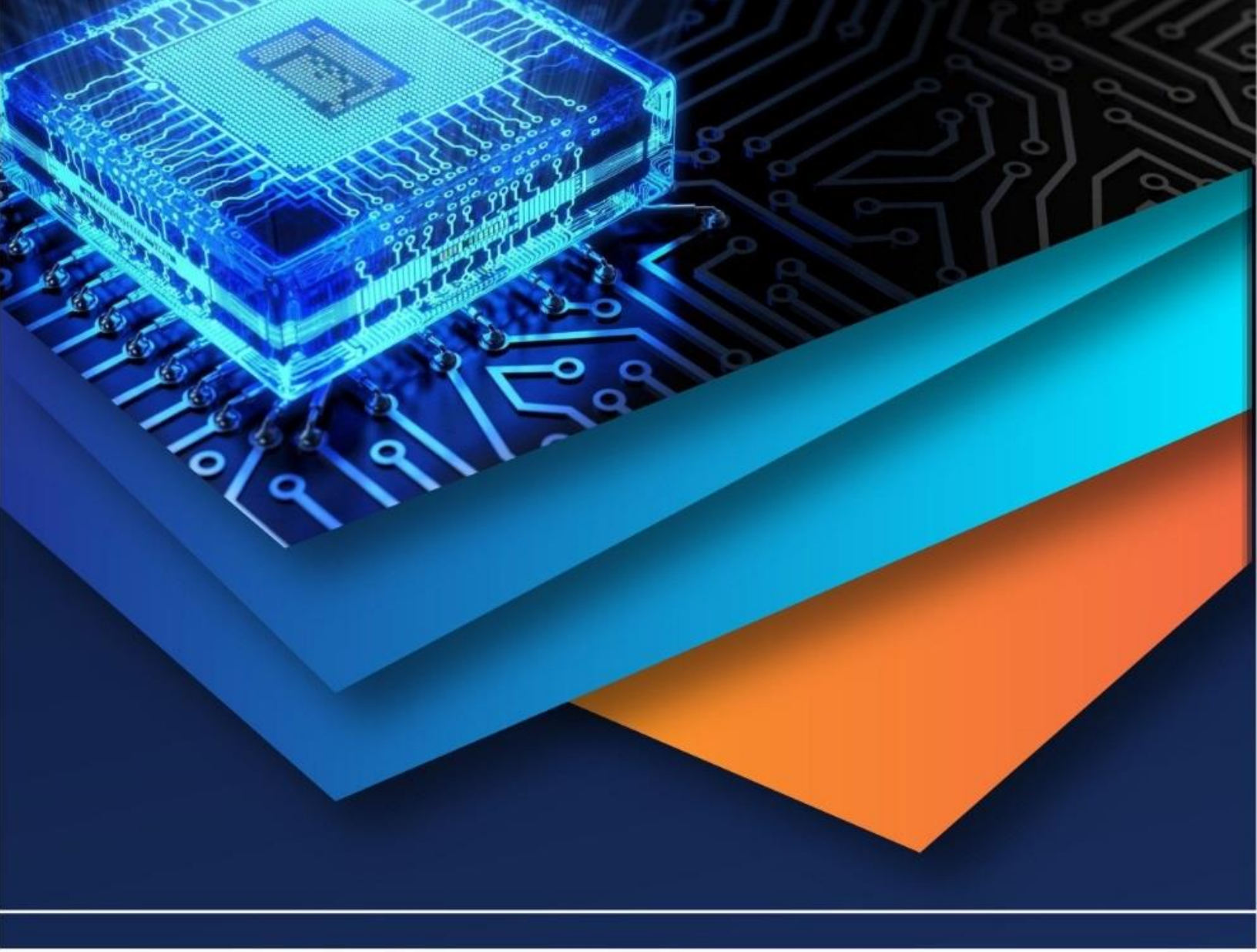
REFERENCES

[1] SchubertML.Physiologic,pathophysiologic,andpharmacologicregulationofgastricacidsecretion. CurrOpinGastroenterol.2016;32(6):430-444.
[2] HuntRH,CamilleriM,CroweSE,etal.Thestomachinhealthanddisease.Gut.2015;64(10):1650-1668.
[3] SandhuDS,FassR.Currenttrendsinthemanagementofgastroesophagealrefluxdisease. GutLiver.2018;12(1):7-16.
[4] NilssonM,JohnsenR,YeW,etal.Lifestylerelatedriskfactorsintheaetiologyofgastro-oesophagealreflux.Gut.2004;53(12):1730-1735
[5] BerardiRR,WelageLS.Proton-pumpinhibitorsinacid-relateddiseases.AmJHealthSystPharm.1998;55(21):2289-2298.
[6] PandeyaN,GreenAC,WhitemanDC.Prevalenceanddeterminantsoffrequentgastroesophagealrefluxsymptomsintheaustraliancommunity. Dis Oesophagus. 2012;25(7):573-583.
[7] Basic&ClinicalPharmacology(15thed.).McGraw-Hill.DiscussesthepharmacologyofantacidsandPPIs, including theiractivationinan acidic environment (prodrug nature of PPIs).
[8] PatwardhanB, WarudeD, PushpangadanP,etal. Ayurvedaandtraditional Chinesemedicine: acomparativeoverview.EvidBasedComplement Alternat Med. 2005;2(4):465-473.
[9] ScarpignatoC,HuntRH.Protonpumpinhibitors: thebeginningoftheendortheendofthebeginning? CurrOpinPharmacol2008;8(6):677-684.
[10]
[11] AslMN,HosseinzadehH.Reviewofpharmacologicaleffectsof Glycyrrhizasp.anditsbioactivecompounds.PhytotherRes.2008;22(6):709-724.
[12] Langmead L, FeakinsRM, GoldthorpeS,etal. Randomized,double-blind,placebo-controlled trialoforalaloeveragel foractiveulcerative colitis. Aliment Pharmacol Ther. 2004;19(7):739-747.
[13] PrasadS,AggarwalBB.Turmeric,thegoldenspice:fromtraditionalmedicinetomodernmedicine. HerbalMedicine:Biomolecularand Clinical Aspects. 2011; 2:263-288.
[14] JohriRK.CuminumcyminumandCarumcarvi:anupdate.PharmacognosyRev.2011;5(9):63-72

[15] GoyalRK,SinghJ,LalH.Asparagusracemosus—anupdate.IndianJMedSci.2003;57(9):408-414.
[16] AlankarS.Areviewonpeppermintoil.AsianJPharmClinRes.2009;2(2):27-33.
[17] WagnerH,Ulrich-MerzenichG.Synergyresearch:approachinganewgenerationofphytopharmaceuticals. Phytomedicine.2009;16(23):97-110.
[18] Johri,R.K.(2011).CuminumcyminumandCarumcarvi:Anupdate.PharmacognosyReviews,5(9),63–72.
[19] Ali,B.H.,etal.(2008).Somephytochemical,pharmacological,andtoxicologicalpropertiesofginger(ZingiberofficinaleRoscoe):review of recent research. Food and Chemical Toxicology, 46(2), 409-420.
[20] Mahendra,P.,&Bisht,S.(2012).Ferulaasafoetida:Traditionalusesandpharmacologicalactivity.PharmacognosyReviews,6(12),141–146.
[21] Nazari, S.,etal. (2017). Areviewofthepharmacological effectsofGlycyrrhizaglabra (Liquorice)anditsactiveconstituents. Journalof Medicinal Plants, 16(61), 1-11.
[22] Sharma,R.,&Prajapati,P.K.(2015)."TraditionalAyurvedicFormulations:Churna,Avaleha,andAsava-Arishta."JournalofPharmacognosy and Phytochemistry, 4(3), 80-87.
[23] Mukherjee,P.K.(2002).QualityControlof HerbalDrugs.BusinessHorizons.(pp.186210).Detailsextractionmethods(maceration,percolation) for Terminalia spp. and Emblica officinalis



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