

## EVALUATION OF THE EFFECTS OF GASTRO PROTECT AS AN ALTERNATIVE MEDICINE ON GASTRITIS AND OTHER GASTROINTESTINAL SYMPTOMS

Dafina Nikolova<sup>1</sup>, Meri Trajkovska<sup>1</sup>, Emilija Nikolovska Trpcevska<sup>1</sup>,  
Vladimir Andreevski<sup>1</sup>, Kalina Grivceva Stardelova<sup>1</sup>, Vesna Velic<sup>2</sup>

<sup>1</sup> University clinic of Gastroenterohepatology, Faculty of Medicine, University "Ss Cyril and Methodius", Skopje, RN Macedonia

<sup>2</sup> Department of Epidemiology and Biostatistics, Faculty of Medicine, University "Ss Cyril and Methodius", Skopje, RN Macedonia

**Corresponding author:** Dafina Nikolova, dafina.janevska@gmail.com, tel: +38978334440

### ABSTRACT

**Introduction:** The use of herbal medicine as a part of the Complementary and Alternative Medicine is increasing worldwide. Herbal remedies are used to better different conditions including gastritis.

**Material and Methods:** We conducted a prospective randomized control clinical trial on a total sample of 72 patients with gastritis in order to examine the effects of the commercial herbal product Gastro Protect. After 6 weeks of conventional therapy the patients were divided into two groups with 36 patients each. As a continuation of the treatment, Group 1 received conventional therapy + Gastro Protect and Group 2 received conventional therapy + Placebo.

We analyzed 14 selected gastrointestinal symptoms, five related to digestive problems, and nine related to stool and bowel problems. For assessing the selected symptoms we used seven point gastrointestinal symptom rating scale (GSRS).

**Results:** The Gastro Protect group had a significantly lower GSRS score (better condition) compared to the Placebo group related to all five selected symptoms of digestive problems as: abdominal pain ( $p=0.0250$ ), hunger pain ( $p=0.0276$ ), nausea ( $p=0.0019$ ), heartburn ( $p=0.00001$ ), and acid reflux ( $p=0.0017$ ). The Gastro Protect group, also had a significantly lower GSRS score (better condition) compared to the Placebo group related to three out of nine selected bowel symptoms: rumbling ( $p=0.0022$ ), abdominal distension ( $p=0.0029$ ), and gas or flatus ( $p=0.0039$ ).

**Conclusion:** Gastro protect was effective in treating gastritis and other gastrointestinal symptoms. It was safe for usage and showed almost no side effects. In our study, Gastro Protect reduced the examined gastric symptoms and related examined intestinal symptoms.

**Keywords:** herbal medicine, gastrointestinal symptoms, gastritis, alternative medicine

### INTRODUCTION

Gastritis is an inflammation of the gastric mucosa caused by various agents such as bacteria (*Helicobacter pylori*), viruses (Epstein bar virus), some kinds of drugs (NSAID), autoimmunity, and different irritant agents (alcohol, smoking) [1, 2].

Although it includes heterogeneous entities, gastritis is often defined as acute or chronic, based on the clinical and pathological findings [3].

The prevalence of the most common *Helicobacter pylori* gastritis varies between different geographical regions and ethnic groups, but it remains a health problem in both developing and developed countries. The prevalence ranges from 34.7% in developed countries to 50.8% in developing countries [2].

Gastritis is presented with a spectrum of upper digestive clinical symptoms, including discomfort in the upper abdomen, feeling of fullness, epigastric pain, and epigastric burning, nausea, vomiting; a cluster of symptoms consistent with dyspepsia [2, 3].

The treatment of gastritis is based on the identification of the cause and the elimination of the harmful agent. It usually includes antacids, H<sub>2</sub> blockers and proton-pump inhibitors [4, 5].

Complementary and Alternative Medicine (CAM) is defined as medicine, which is not considered as a conventional (standard) medicine. The use of herbal medicine as part of CAM is increasing worldwide [6]. A systemic review from 32 countries, from all regions of the world, showed that the prevalence estimate of CAM usage was 26.4%, ranging from 25.9 to 26.9%. In 2013 the prevalence of CAM usage in China was reported to reach up to 53.3% [7]. In addition, some physicians, professional health carriers recommend CAM to the patients, friends and family [8-10].

People use herbal medicine (HM) to maintain or improve their health, to prevent chronic or acute illness, and to treat them. Patients who use HM do it also because of dissatisfaction of the conventional medicine or because of the positive experience with usage of HM in the past [6].

The aim of this study was to examine the effects of Gastro Protect, a dietary supplement with Triphala mixture, extracts of licorice root, Aloe vera and magnesium, in reducing and alleviating the gastrointestinal symptoms in patients with gastritis receiving conventional therapy by assessing it using the gastrointestinal symptom rating scale (GSRS).

## MATERIAL AND METHODS

This was a prospective randomized control clinical trial implemented at the University Clinic of Gastroenterohepatology, University Clinical Centre Mother Teresa, Skopje during the period of 2023. The study elaborated the total sample of 72 patients with acute and chronic gastritis. After 6 weeks of conventional therapy, using randomization-blinding allocation, the patients were divided into two groups with 36 (100%) patients each. As a continuation of the treatment, Group 1 received conventional therapy + Gastro Protect

(2 x 20ml) and Group 2 received conventional therapy + Placebo.

Out of 14 selected gastrointestinal symptoms, five were related to digestive problems, and nine were related to stool and bowel problems. For assessing the selected symptoms we used seven point Gastrointestinal symptom rating scale (GSRS) which ranged from no discomfort=0, trough minor=1, mild=2, moderate=3, moderate to severe=4, severe=5, to very severe discomfort=6. We made the symptoms assessment 6 weeks after the introduction of the Gastro Protect/ Placebo. The lower GSRS score indicated better condition.

To evaluate the internal consistency of the block of 5 questions designed to assess the digestive problems, as well as the block of 9 questions for stool and bowel problems, a reliability analysis was performed on the answers received. The values obtained for the Cronbach's Alpha coefficient were 0.917 for digestive problems, and 0.901 for stool and bowel problems, which indicated high consistency, i.e. reliability of the answers received in both blocks.

All patients have signed informed consent, after a detailed information about the study that was presented to them.

### Statistical analysis

The data obtained with the research were processed in the SPSS software package, version 22.0 for Windows. The quantitative parameters were analyzed using measures of central tendency (mean, median, range), as well as with dispersion measures (standard deviation). The categorical data were presented as counts and percentages. The Shapiro-Wilk W test was used to determine the normality of the frequency distribution of GSRS scores for each of the 14 gastrointestinal symptoms as well as the GSRS cumulative scores. In order to understand the internal consistency of the questions, the reliability analysis of the received answers was analyzed by calculating the Cronbach's alpha coefficient. The Pearson's chi-squared test was used to determine the association between gender and groups of subjects. The Mann-Whitney U test was used to compare the differences between Placebo / Gastro Protect groups related to age as well as the answers on the GSRS scale related to the selected gastrointestinal symptoms. T-test for independent samples was used to compare the groups

related to the total GSRS scores. The one-way ANOVA was used to determine the significant differences between the groups after age and gender adjustment. A two-sided analysis with a significance level of  $p < 0.05$  was used to determine the statistical significance.

## RESULTS

### *Study group characteristics*

The study elaborated patients with gastritis from two groups with 36 (100%) patients each. Group 1 received conventional therapy + Gastro Protect, and Group 2 received conventional therapy + Placebo.

The Gastro Protect group (N=36) had equal male and female proportions of 18 (50%) each. In the Placebo group (N=36), the proportion of male was 11 (30.56%) and of female was 25 (69.44%) with female/male ratio of 0.4:1. No significant association was found between gender and the group to which the patients belonged ( $X^2=2.829$ ;  $df=1$ ;  $p=0.0926$ ).

The average age of the patients in the Gastro Protect/Placebo group was  $56.47 \pm 13.32$  with min/max age of 29/77 years vs.  $56.58 \pm 18.43$  with min/max age of 18/81 years consequently. About 50% of the patients in the Gastro Protect/Placebo group aged  $< 59.5$  years for Median 59.5 (49.5-65.5) vs.  $< 61$  years for Median IQR=61 (42-71), with no significant age differences between the groups ( $Z=-0.563$ ;  $p=0.5733$ ).

### *Comparison of the Gastro Protect / Placebo therapeutic effect*

The Gastro Protect group had a significantly lower GSRS score (better condition) compared to the Placebo group related to all five selected symptoms of digestive problems, such as: abdominal pain ( $p=0.0250$ ), hunger pain ( $p=0.0276$ ), nausea ( $p=0.0019$ ), heartburn ( $p=0.00001$ ), and acid reflux ( $p=0.0017$ ) (Table 1).

After the treatment in the Gastro Protect group, with no discomfort were 50% of the patients related to abdominal pain, hunger pain, nausea and acid reflux (Median GSRS score = 0). Only related to heartburn, in 50% of the patients from this group we registered  $\leq$  minor discomfort (Median GSRS score=1) (Table 1).

The Placebo group analysis after the treatment showed that 50% of the patients declared  $\leq$  minor discomfort related to abdominal pain, hunger pain, and nausea (Median GSRS score=1). Additionally, 25% of the patients from this group felt  $\geq$  moderate discomfort related to heartburn as well as related to acid reflux (75th percentile GSRS score=3) (Table 1).

In the Gastro Protect group, the maximal individual GSRS score or the worst individual condition related to digestive symptoms after the treatment was indicated for the abdominal pain, and for the acid reflux. For these two symptoms there were individuals who reported moderate - severe discomfort (GSRS score=4). In the Placebo group after the treatment, the maximal individual GSRS score or the worst individual condition was registered for heartburn and for acid reflux defined as very severe discomfort (GSRS score=6) (Table 1).

The Gastro Protect group had a significantly lower GSRS score (better condition) compared to the Placebo group related to three out of nine selected symptoms of bowel problems: rumbling ( $p=0.0022$ ), abdominal distension ( $p=0.0029$ ), and gas or flatus ( $p=0.0039$ ).

After the treatment in the Gastro Protect group, with no discomfort were 50% of the patients related to rumbling, and abdominal distension (Median GSRS score=0). Related to gas or flatus, in 50% of the patients from this group we registered minor to no discomfort (Median GSRS score=0.5) (Table 2).

In the Placebo group after the treatment, 50% of the patients were with  $\leq$  minor discomfort related to rumbling (Median GSRS score=1), and  $\leq$  mild discomfort related to gas or flatus (Median GSRS score=2). About 25% of the patients in this group reported  $\geq$  moderate discomfort related to the abdominal distension as well as related to the gas or flatus (75th percentile GSRS score=3).

No significant differences between the Gastro Protect and Placebo group was found related to GSRS score for diarrhea ( $p=0.3797$ ), loose stool ( $p=0.5209$ ), urgent need to have a bowel movement ( $p=0.8306$ ), constipation ( $p=0.6523$ ), hard stools ( $p=0.5282$ ), and sensation of not completely emptying the bowel ( $p=0.6976$ ) (Table 2).

In the Gastro Protect group, the maximal individual GSRS score or worst individual con-

dition related to bowel symptoms after the treatment was indicated for the abdominal distension reported as severe discomfort (GSRS score=5). In the Placebo group after the treatment, the maximal individual GSRS score or the worst individual condition was registered for abdominal distension, hard stool and for sensation of not completely emptying the bowel. For these three symptoms individuals reported very severe discomfort (GSRS score=6) (Table 2).

The patients in the Gastro Protect group were found to have significantly better condition compared to those in the Placebo group related to the total GSRS score for 14 gastrointestinal symptoms ( $p=0.00002$ ), total GSRS score for 5 digestive symptoms ( $p=0.00002$ ), as well as total GSRS score for 9 bowel symptoms ( $p=0.0007$ ) (Table 3).

The significantly better condition of patients in the Gastro Protect group compared to the patients in Placebo group related to the total GSRS score for gastrointestinal symptoms vs. digestive symptoms vs. bowel symptoms remained significant after the age-adjustment ( $p=0.00001$  vs.  $p=0.00001$  vs.  $p=0.0240$  consequently), as well as after the gender-adjustment ( $p=0.00001$  vs.  $p=0.00001$  vs.  $p=0.0210$  consequently) (Table 3).

## DISCUSSION

According to the WHO the terms “complementary medicine” or “alternative medicine” refer to a broad set of health care practices that are not part of that country’s own tradition or conventional medicine and are not fully integrated into the dominant health-care system. They are used interchangeably with traditional medicine in some countries. Herbal medicines include herbs, herbal materials, herbal preparations and finished herbal products that contain as active ingredients parts of plants, or other plant materials, or combinations (WHO, [https://www.who.int/health-topics/traditional-complementary-and-integrative-medicine#tab=tab\\_1](https://www.who.int/health-topics/traditional-complementary-and-integrative-medicine#tab=tab_1))

CAM including herbal medicine (botanical medicine or phytomedicine) has a long history of traditional use outside conventional medicine. The usage of herbs include plant’s seeds, berries, roots, leaves, bark, or flowers for medicinal purposes [11].

The traditional herbal medicine acquires more and more attention in the global health disease, not only because many approved drugs currently on the markets are obtained from plants, but

**Table 1.** Comparison of the Gastro Protect/Placebo group GSRS scores related to symptoms of digestive problem after the treatment

| Parameters                                                                                       | Digestive symptoms – GSRS score |           |           |              | P                    |
|--------------------------------------------------------------------------------------------------|---------------------------------|-----------|-----------|--------------|----------------------|
|                                                                                                  | N                               | Mean± SD  | Min / Max | Median (IQR) |                      |
| Abdominal pain                                                                                   |                                 |           |           |              |                      |
| Gastro Protect                                                                                   | 36                              | 0.58±1,08 | 0/4       | 0 (0-1)      | Z=2.241; p=0.0250*   |
| Placebo                                                                                          | 36                              | 1.39±1.54 | 0/5       | 1 (0-3)      |                      |
| Hunger pain                                                                                      |                                 |           |           |              |                      |
| Gastro Protect                                                                                   | 36                              | 0.44±0.81 | 0/3       | 0 (0-1)      | Z=2.203; p=0.0276*   |
| Placebo                                                                                          | 36                              | 0.97±1.16 | 0/4       | 1 (0-2)      |                      |
| Nausea                                                                                           |                                 |           |           |              |                      |
| Gastro Protect                                                                                   | 36                              | 0.55±0.91 | 0/3       | 0 (0-1)      | Z=3.108; p=0.0019*   |
| Placebo                                                                                          | 36                              | 1.55±1.38 | 0/4       | 1 (0-3)      |                      |
| Heartburn                                                                                        |                                 |           |           |              |                      |
| Gastro Protect                                                                                   | 36                              | 1.03±1.08 | 0/3       | 1 (0-2)      | Z=4.567; p=0.00001 * |
| Placebo                                                                                          | 36                              | 2.64±1.39 | 0/6       | 3 (2-3)      |                      |
| Acid reflux                                                                                      |                                 |           |           |              |                      |
| Gastro Protect                                                                                   | 36                              | 0.78±1.45 | 0/4       | 0 (0-1.5)    | Z=3.142; p=0.0017*   |
| Placebo                                                                                          | 36                              | 2.00±1.67 | 0/6       | 2 (0-3)      |                      |
| GSRS – Gastrointestinal symptom rating scale; SD – standard deviation; IQR – Interquartile range |                                 |           |           |              |                      |
| *significant for p<0.05                                                                          |                                 |           |           |              |                      |



also because CAM may represent a considerable and largely unused resource base [12-14]. Therefore, policymakers and public health personnel have to understand the range in which CAM participates in the health care and society [13].

Although many researches are made on herbal medicine in different world regions, more clinical trials are needed for different plants, extracts or nature-based therapy products [15-23].

MK Gastro Protect, in a 500 ml. package, is a commercial product, declared as a nutritional supplement with Triphala mixture, extracts of licorice root, Aloe vera (*Barbadensis* Miller), and magnesium, for dietary regulation of inflammatory processes in the gastrointestinal tract such as impaired taste, nausea and pain (gastric reflux, gastritis, colitis).

Ingredients: Water, Glycerol, Triphala mixture powder: (*Terminalia belerica*, *Terminalia chebula*, *Emblica officinalis* (1:1:1), liquorice root extract (*Glycyrrhizaglabra*), Aloe vera, magnesium, xanthan gum, preservatives (potassium sorbate, sodium benzoate), blueberry aroma, sweetener (stevia).

The product is approved for use by the Department of Preclinical and Clinical Pharmacology and Toxicology, Faculty of Medicine (document No 178-2) and by the Food and Veterinary Agency of North Macedonia (document No 21-2561).

### *Triphala mixture*

Triphala is well-recognized poly-herbal mixture traditionally used in Ayurvedic medicine. [17,18].

It is a mixture of the dried powders of three fruits: *Emblica officinalis*, *Terminalia belerica* and *Terminalia chebula* in equal proportions, and is one among ayurvedic herbal remedies most preferred by the medical practitioners. It has antioxidant, anti-inflammatory, and antibacterial effects and may have various health benefits, such as improving oral and digestive health and supporting skin healing. It is also considered that Triphala may have beneficial effects in patients with AIDS, headache, dyspepsia, ascites, leucorrhea, arthritis, and is used as laxative, eye rejuvenator, blood purifier and hypoglycemic, anti-cancer drug [17, 18, 24-26].

Triphala is rich in polyphenols, Vitamin C and flavonoids, but the major constituents of the formula are the tannins, gallic acid, ellagic acid,

and chebulinic acid, which are potent antioxidants [24, 25, 27].

Triphalais is used as a remedy for bettering the gastrointestinal health, but opposite options can be found in the literature on its effects in gastrointestinal tract (GI). A human clinical study performed by Pulok K. et al. reported that treatment with Triphala reduced constipation, mucous, abdominal pain, hyperacidity, and flatulence while improving the frequency, yield, and consistency of stool in patients [28]. On the contrary, Mehmood MH. et al. found antidiarrheal and spasmolytic activities of the remedy [29]. Therefore, the available literature indicates that Triphala might have directional activity, either to accelerate or to slow down the intestinal peristalsis, maybe due to the non-standard formulation of Triphala, or to focus on a particular component as a marker for the study [30]. It is also reported that Triphala induces protective effects [24] and that Triphala formulations possess significant anti-ulcer activity against experimental gastric ulcer in rats [31].

### *Aloe vera*

Aloe vera (*A. vera*) has a long history of medical use and is considered to have potential health benefits. The plant has more than 200 different biologically active substances, with the most biological properties contributed by the leaves inner gel [19]. *A. vera* is traditionally used to cure skin injuries, burns, insect bites, and eczema, but it has many medical properties such as anticancer, antidiabetic, antiarthritic, antimicrobial and many others. It is promoted for immune system deficiencies, also. Due to its anti-inflammatory and antimicrobial properties, it is often used to treat different digestive disorders including constipation, cramping and diarrhea. [19-22]. Ingesting *A. vera* juice in specific amounts is helpful in healing stomach ulcers and heartburn [21]. The *A. vera* leaf gel express antibacterial properties against susceptible and resistant *Helicobacter pylori* strains and is effective natural remedy in combination with antibiotics for treatment of *Helicobacter pylori* gastritis [19, 32].

### *Liquorice – Glycyrrhizaglabra*

Liquorice or licorice is the common name of *Glycyrrhiza glabra*.

Liquorice is one of the most used herbal remedy in traditional medicine and has been reported to possess many therapeutic properties,

due to its main bioactive constituents triterpene saponins and flavonoids. The remedy is derived from the dried roots and rhizomes of the plant and has antioxidant, antibacterial, antiviral, anticancer, anti-HIV, anti-inflammatory, hepatoprotective, expectorant, antiosteoporotic, spasmolytic, neuroprotective, antiallergic, antidiabetic activities. It also has beneficial effects on the skin eruptions, dermatitis and eczema and adrenocortical hormone-like effects. [23, 33, 34]. Few studies in vitro have confirmed liquorice antiulcer effects, due to increased mucin production and blood supply, inhibition of gastrin secretion and antipepsin effects [35-37].

### *Magnesium*

Magnesium (Mg) is important oligoelement, which is located intra or extracellular in the human body. Within the cells, magnesium acts as a cofactor in more than 300 enzymatic reactions, different metabolic pathways and carries out various intracellular physiological functions. It stabilizes the enzymes and acts as a counter ion for the energy-rich ATP and nucleic acids. Approximately 99% of the body Mg is located in the bones, muscles and non-muscular soft tissue. It is essential ion for many functions such as heart rhythm, vascular tone, nerve function and muscle contraction and relaxation [38]. It is considered that supplemental Mg can be beneficial in various cardiac arrhythmias, headache, metabolic syndrome, diabetes, hyperlipidemia, asthma, depression, eclampsia, and many other conditions [39].

In our study the combination of Triphala, Liquorice, Aloe vera and magnesium in the commercial product Gastro Protect showed beneficial significant effects in patients with gastritis, reducing the abdominal pain, hunger pain, nausea, heartburn, and acid reflux ( $p=0.0250$ ,  $p=0.0276$ ,  $p=0.0019$ ,  $p=0.00001$ ,  $p=0.0017$  respectively) in comparison to the Placebo group.

It was useful in reducing the gastrointestinal symptoms such as rumbling, abdominal distension and gas/flatulence ( $p=0.0022$ ,  $p=0.0029$ ,  $p=0.0030$  respectively) in comparison to the Placebo group. No patients suffered any side effects; except for one patient, female, 29 years old, who manifested weak headache in the sixth week of the study.

According to the incising interest and usage of herbal medicine among the patients, research on the beneficial effects of herbal medicine is still needed. The research should find out whether

herbal remedies better the condition of the patients or they may harm, because some forms of complementary and alternative medicine are safe but others aren't; some are effective while others may be pure placebos [12].

The clinical trials on herbal medicine would help doctors to answer many patient's questions who are more willing to accept the traditional than the conventional evidence based medicine.

## CONCLUSION

---

Gastro Protect was effective in treating gastritis and other gastrointestinal symptoms. It was safe for usage and showed almost no side effects. In our study, Gastro Protect reduced the examined gastric symptoms and the related examined intestinal symptoms.

### *Acknowledgments*

The authors would like to thank the Natura Therapy Company for the donation of the Gastro Protect herbal remedy for this study.

### *Declaration*

Ethical Approval: The study was approved by the ethics committee of the Faculty of Medicine in Skopje (Republic of North Macedonia), and the research was carried out in accordance with the 1964 Helsinki Declaration.

### *Availability of data and materials*

Available through the corresponding author.

## REFERENCES

---

1. Marcial G, Rodriguez C, Medici M, de Valdez GF. New Approaches in Gastritis Treatment [Internet]. Gastritis and Gastric Cancer - New Insights in Gastroprotection, Diagnosis and Treatments. InTech; 2011. Available from: <http://dx.doi.org/10.5772/23221>
2. Feyisa ZT, Woldeamanuel BT. Prevalence and associated risk factors of gastritis among patients visiting Saint Paul Hospital Millennium Medical College, Addis Ababa, Ethiopia. PLoS One. 2021 Feb 9;16(2):e0246619. doi: 10.1371/

- journal.pone.0246619. PMID: 33561152; PMCID: PMC7872234.
3. Rugge, M., Sugano, K., Sacchi, D. et al. Gastritis: An Update in 2020. *Curr Treat Options Gastro* 18, 488–503 (2020). <https://doi.org/10.1007/s11938-020-00298-8>.
  4. Sugano K, Tack J, Kuipers EJ, et al. Kyoto global consensus report on *Helicobacter pylori* gastritis. *Gut*. 2015;64(9):1353–67. <https://doi.org/10.1136/gutjnl-2015-309252>. The publication refers the results of a global consensus concerning the taxonomy of gastritis.
  5. Fallone CA, Moss SF, Malfertheiner P. Reconciliation of recent *Helicobacter pylori* treatment guidelines in a time of increasing resistance to antibiotics. *Gastroenterology*. 2019;157(1):44–53. <https://doi.org/10.1053/j.gastro.2019.04.011>.
  6. Welz, A.N., Emberger-Klein, A. & Menrad, K. Why people use herbal medicine: insights from a focus-group study in Germany. *BMC Complement Altern Med* 18, 92 (2018). <https://doi.org/10.1186/s12906-018-2160-6>.
  7. Peltzer K, Pengpid S. Prevalence and determinants of traditional, complementary and alternative medicine provider use among adults from 32 countries. *Chin J Integr Med*. 2018;24(8):584–90.
  8. Kolstad A, et al. Use of complementary and alternative therapies: a national multicentre study of oncology health professionals in Norway. *Support Care Cancer*. 2004;12(5):312–8.
  9. Manek NJ, et al. What rheumatologists in the United States think of complementary and alternative medicine: results of a national survey. *BMC Complement Altern Med*. 2010;10:5.
  10. Trimborn A, et al. Attitude of employees of a university clinic to complementary and alternative medicine in oncology. *Ann Oncol*. 2013;24(10):2641–5.
  11. Wachtel-Galor S, Benzie IFF. Herbal Medicine: An Introduction to Its History, Usage, Regulation, Current Trends, and Research Needs. In: Benzie IFF, Wachtel-Galor S, editors. *Herbal Medicine: Biomolecular and Clinical Aspects*. 2nd edition. Boca Raton (FL): CRC Press/Taylor & Francis; 2011. Chapter 1. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK92773/>
  12. Patridge E., Gareiss P., Kinch M.S., Hoyer D. An analysis of FDA-approved drugs: Natural products and their derivatives. *Drug Discovery Today*. 2016;21(2):204–207. doi: 10.1016/j.drudis.2015.01.009.
  13. Silenzio VM. What is the role of complementary and alternative medicine in public health? *Am J Public Health*. 2002 Oct;92(10):1562–4. doi: 10.2105/ajph.92.10.1562. PMID: 12356590; PMCID: PMC1447277.
  14. Ernst E. The role of complementary and alternative medicine. *BMJ*. 2000 Nov 4;321(7269):1133–5. doi: 10.1136/bmj.321.7269.1133. PMID: 11061738; PMCID: PMC1118903.
  15. Bonham-Corcoran M, Armstrong A, O'Briain A, Cassidy A, Turner N. "The benefits of nature-based therapy for the individual and the environment: an integrative review", *Irish Journal of Occupational Therapy*, 2022;50(1):16–27. <https://doi.org/10.1108/IJOT-06-2021-0015>
  16. Tarasiuk A, Mosińska P, Fichna J. Triphala: current applications and new perspectives on the treatment of functional gastrointestinal disorders. *Chin Med*. 2018 Jul 18;13:39. doi: 10.1186/s13020-018-0197-6. PMID: 30034512; PMCID: PMC6052535.
  17. Peterson CT, Denniston K, Chopra D. Therapeutic Uses of Triphala in Ayurvedic Medicine. *J Altern Complement Med*. 2017 Aug;23(8):607–614. doi: 10.1089/acm.2017.0083. Epub 2017 Jul 11. PMID: 28696777; PMCID: PMC5567597.
  18. Belapurkar P, Goyal P, Tiwari-Barua P. Immunomodulatory effects of triphala and its individual constituents: a review. *Indian J Pharm Sci*. 2014 Nov-Dec;76(6):467–75. PMID: 25593379; PMCID: PMC4293677.
  19. Radha MH, Laxmipriya NP. Evaluation of biological properties and clinical effectiveness of Aloe vera: A systematic review. *J Tradit Complement Med*. 2014 Dec 23;5(1):21–6. doi: 10.1016/j.jtcme.2014.10.006. PMID: 26151005; PMCID: PMC4488101.
  20. Sánchez M, González-Burgos E, Iglesias I, Gómez-Serranillos MP. Pharmacological Update Properties of Aloe Vera and its Major Active Constituents. *Molecules*. 2020 Mar 13;25(6):1324. doi: 10.3390/molecules25061324. PMID: 32183224; PMCID: PMC7144722.
  21. Retiu A, Budescu T, Menae I. Aloe Vera Extract for Stomach Acid Use Safe and Effective Treatment. *Int. j. adv. res. rev.* 2012;2(2):59–64. DOI: <https://doi.org/10.47667/ijpasr.v2i2.125>
  22. Guo X, Mei N. Aloe vera: A review of toxicity and adverse clinical effects. *J Environ Sci Health C Environ CarcinogEco-toxicol Rev*. 2016 Apr 2;34(2):77–96. doi: 10.1080/10590501.2016.1166826. PMID: 26986231; PMCID: PMC6349368.
  23. Lim TK. Glycyrrhizaglabra. *Edible Medicinal and Non-Medicinal Plants*. 2015 Oct 22:354–457. doi: 10.1007/978-94-017-7276-1\_18. PMCID: PMC7122586.
  24. Kumar SN, Nair SA, Nair MA, Murali M. Pharmacological and therapeutic effects of triphala

- A literature review. *Journal of Pharmacognosy and Phytochemistry* 2016; 5(3): 23-27
25. Srikumar R, Parthasarathy N, Manikandan S, Narayanan G, Sheeladevi R. Effect of Triphala on Oxidative stress and on cellmediated immune response against noise stress in rats. *Molecular Cell Biochemistry*. 2006; 283:67-74.
  26. Kaur S, Michael H, Arora S, Harkonen P, Kumar S. The in vitro Cytotoxic and apoptotic activity of Triphala- an Indian herbal drug. *Journal of Ethnopharmacology*. 2005; 9(1):15-20.
  27. Lee HS, et al.. Antioxidant effects of aqueous extract of *Terminalia chebula* in vivo and in vitro. *Biol Pharm Bull* 2005;28:1639–1644
  28. Pulok K, Mukherjee SR, Bhattacharyya S, et al.. Clinical study of ‘Triphala’—A well known-phytomedicine from India. *Iran J Pharmacol-Ther* 2005;5:51–54
  29. Mehmood MH, Siddiqi HS, Gilani AH. The anti-diarrheal and spasmolytic activities of *Phyllanthus emblica* are mediated through dual blockade of muscarinic receptors and Ca<sup>2+</sup> channels. *J Ethnopharmacol*. 2010;133:856–865. doi: 10.1016/j.jep.2010.11.023.
  30. Tarasiuk A, Mosińska P, Fichna J. Triphala: current applications and new perspectives on the treatment of functional gastrointestinal disorders. *Chin Med*. 2018 Jul 18;13:39. doi: 10.1186/s13020-018-0197-6. PMID: 30034512; PMCID: PMC6052535.
  31. Nariya MB, Shukla VJ, Ravishankar B, Jain SM. Comparison of Gastroprotective Effects of Triphala Formulations on Stress-induced Ulcer in Rats. *Indian J Pharm Sci*. 2011 Nov;73(6):682-7. doi: 10.4103/0250-474X.100252. PMID: 23112406; PMCID: PMC3480757.
  32. Babae N, Zabihi E, Mohseni S, Moghadamnia AA. Evaluation of the therapeutic effects of Aloe vera gel on minor recurrent aphthous stomatitis. *Dent Res J (Isfahan)*. 2012;9:381e385.
  33. Memedov NA, Egamberdieva D. *Phytochemical Constituents and Pharmacological Effects of Licirice: A Review*. In: OzturkM, Hakeem > 9eds) *Plant and Human Health*. 2019; Vol 3. Springer. Cham. [https://doi.org/10.1007/978-3-030-04408-4\\_1](https://doi.org/10.1007/978-3-030-04408-4_1)
  34. Ding Y, Brand E, Wang W, Zhao Z. Licorice: Resources, applications in ancient and modern times. *J. Ethnopharmacol*. 2022 Vol 298: 115594. <https://doi.org/10.1016/j.jep.2022.115594>.
  35. Bennett A, Clark-Wibberley T, Stamford IF, Wright JE (1980) Aspirin-induced gastric mucosal damage in rats: cimetidine and deglycyrrhizinatedliquorice together give greater protection than low doses of either drug alone. *J Pharm Pharmacol* 32:151
  36. Van Marle J, Aarsen PN, Lind A, van Weeren Kramer J (1981) Deglycyrrhizinisedliquorice (DGL) and the renewal of rat stomach epithelium. *Eur J Pharmacol* 72:219–225
  37. Masoomah MJ, Kiarash G (2007) In vitro susceptibility of *Helicobacter pylori* to licorice extract. *Iran J Pharm Res* 6:69–72
  38. Jannen-Dechent W, Ketteler M. Magnesium basics. *Clin Kidney J*. 2012 Feb;5(Suppl 1):i3-i14. doi: 10.1093/ndtplus/sfr163.
  39. Schwalfenberg GK, Genuis SJ. The Importance of Magnesium in Clinical Healthcare. *Scientifica (Cairo)*. 2017;2017:4179326. doi: 10.1155/2017/4179326. Epub 2017 Sep 28.

## Резиме

### ЕВАЛУАЦИЈА НА ЕФЕКТИТЕ НА GASTRO PROTECT КАКО АЛТЕРНАТИВЕН ЛЕК ЗА ГАСТРИТИС И ДРУГИ ГАСТРОИНТЕСТИНАЛНИ СИМПТОМИ

Дафина Николова<sup>1</sup>, Мери Трајковска<sup>1</sup>, Емилија Николовска Трпчевска<sup>1</sup>,  
Владимир Андреевски<sup>1</sup>, Калина Гривчева Старделова<sup>1</sup>, Весна Велиќ<sup>2</sup>

<sup>1</sup> Универзитетска клиника за гастроентерохепатологија, Медицински факултет, Универзитет „Св Кирил и Методиј“ во Скопје, РС Македонија

<sup>2</sup> Катедра за епидемиологија и биостатистика, Медицински факултет, Универзитет „Св Кирил и Методиј“ во Скопје, РС Македонија

**Вовед:** Употребата на хербалната медицина како дел од комплементарната и алтернативната медицина се зголемува низ светот. Хербалните лекови се користат за подобрување на различни состојби, вклучително и на гастритисот.

**Материјал и методи:** Спроведовме проспективно рандомизирано контролно клиничко испитување на вкупен примерок од 72 пациенти со гастритис, со цел да ги испитаме ефектите на комерцијалниот хербален производ Gastro Protect. По 6 недели конвенционална терапија, пациентите беа поделени во две групи од по 36 пациенти. Како продолжение на третманот, групата 1 доби конвенционална терапија + Gastro Protect и групата 2 доби конвенционална терапија + плацебо.

Анализираме 14 избрани гастроинтестинални симптоми, пет поврзани со дигестивни проблеми и девет поврзани со проблеми со столицата и со дебелото црево. За процена на избраните симптоми користевме скала за рејтинг на гастроинтестинални симптоми (GSRS) од седум точки.

**Резултати:** Групата Gastro Protect имаше значително понизок GSRS резултат (подобра состојба) во споредба со плацебо-групата поврзана со сите пет избрани симптоми дигестивни проблеми, како што се: абдоминална болка ( $p = 0,0250$ ), болка од глад ( $p = 0,0276$ ), гадење ( $p = 0,0019$ ), горушица ( $p = 0,00001$ ) и рефлукс на киселина ( $p = 0,0017$ ). Групата Gastro Protect, исто така, имаше значително понизок GSRS-резултат (подобра состојба) во споредба со плацебо-групата поврзана со три од девет избрани симптоми на проблеми со дебелото црево: кркореење ( $p = 0,0022$ ), абдоминална дистензија ( $p = 0,0029$ ) и гасови ( $p = 0,0039$ ).

**Заклучок:** Gastro Protect беше ефикасен во третманот на гастритис и други гастроинтестинални симптоми. беше безбеден за употреба и не покажа речиси никакви несакани ефекти. Во нашата студија Gastro Protect ги намали испитуваните гастрични симптоми и поврзаните испитувани цревни симптоми.

**Клучни зборови:** хербална медицина, гастроинтестинални симптоми, гастритис, алтернативна медицина