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## The importance of some native medicinal plants of Iran effective on gastrointestinal disorders in children: A review

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### ABSTRACT

Most people opt to use natural and traditional methods instead of chemical drugs and intrusive methods of modern medicine to treat minor illnesses and disorders of children or newborns. Since gastrointestinal, infectious, and respiratory diseases are the most significant diseases in children, this review article sought to identify and report the native medicinal plants of Iran which have been used to treat gastrointestinal disorders in children. For this study, the key words consisting of digestion, children, medicinal plants, traditional medicine, and Iran were used to search in Web of Science, PubMed, Scopus, Islamic Science Citation Center, and Magiran and relevant articles were selected. The findings indicated that in Iran, nine medicinal plants, *Foeniculum vulgare*, *Pimpinella anisum*, *Acorus calamus*, *Anethum graveolens*, *Zingiber officinalis*, *Lavandula officinalis*, *Capiscum minimum*, *Mentha piperita*, and *Carum carvi* are used to treat gastrointestinal disorders in children. These plants contain phenolic and antioxidant compounds, which could be used to prevent and treat bloat, colic, and anorexia.

**Key words:** Traditional medicine, Medicinal plants, Children, Diseases and Disorders, Iran

### INTRODUCTION

Development of diseases in children is particularly important because their health could be seriously threatened [1-9]. Gastrointestinal, infectious, and respiratory diseases comprise the most important diseases in children. On the other hand, stressful factors could cause energy imbalance in children [10,11]. Therefore, diagnosis and prevention of diseases and avoidance of risk factors are given the highest priority by parents. Parents seek to keep their children far from diseases and risk factors through a variety of ways. In this regard, most parents, instead of using chemical drugs and intrusive approaches of modern medicine, use natural and traditional methods to treat minor illnesses and disorders of their children. The researchers in medicine worldwide argue that natural therapies such as traditional medicine and herbal therapy could be one of the best treatments for human, particularly children. Studies have indicated that traditional medicine and phytotherapy have many capabilities and, alongside modern medicine, contribute further to treating a variety of diseases [12-33]. However herbal medicine could lead to certain complications if prescribed and used by non specialists despite playing a major role in treating diseases.

The use of medicinal plants dates back to the origin of human, and as far as human history is known, human has used medicinal plants to treat diseases and disorders [34,35]. Recent studies have also investigated their effects by scientific approaches [36-49]. In fact, medicinal plants agree with body further because of containing bioactive

substances and are used more frequently [50-54]. In this regard, this review article seeks to identify and report the medicinal plants used to treat gastrointestinal disorders in children by Iran traditional medicine, so that a measure may be taken to develop new therapies and identify natural drugs with fewer side effects.

## MATERIALS AND METHODS

In this study, digestion, children, medicinal plants, traditional medicine, and Iran, both separately and combined, were used to search in the databases of Information Sciences Institute, Web of Science, PubMed, Scopus, Islamic Science Citation Center, and Magiran and the relevant articles were detected. Further, four articles were found through a manual search. Duplicate articles and the article in non English languages were excluded from analysis. Flowchart shows how the articles were searched for and included in the analysis (Figure 1).

## RESULTS

The findings indicated that in Iran nine medicinal plants *Foeniculum vulgare*, *Pimpinella anisum*, *Acorus calamus*, *Anethum graveolens*, *Zingiber officinalis*, *Lavandula officinalis*, *Capsicum minimum*, *Mentha piperita*, and *Carum carvi*, are used to treat bloat, colic, and dyspepsia in children. These plants are mainly from Apiaceae family. Table 1 gives further details regarding these plants.

**Table 1. The medicinal plants effective on gastrointestinal disorders in children**

Number	Scientific name	Family name	Persian name	Effect
1	<i>Foeniculum vulgare</i>	Apiaceae	Razianeh	This plant helps to gradually improve the function of gastrointestinal system in children and reduce bloat- and colic-related complaints [10].
2	<i>Pimpinella anisum</i>	Apiaceae	Anison	5 g of the plant powder is dissolved with water and is brewed. 1.5mL of the solution is daily fed to child or infant to eliminate gastric colic [55].
3	<i>Acorus calamus</i>	Acoraceae	Zanbagh shirin	Use of this plant is effective on stimulation of digestion and appetite in children [56].
4	<i>Anethum graveolens</i>	Apiaceae	Shevid	This plant has anti-spasm effect and its use helps to improve colic in children [57].
5	<i>Zingiber officinalis</i>	Zingiberaceae	Zanjabil	Use of this plant for children is effective on stimulation of digestion and appetite [58].
6	<i>Lavandula officinalis</i>	Lamiaceae	Badian	This plant boiled shoots are used to treat colic in newborns [59].
7	<i>Capsicum minimum</i>	Solanaceae	Felfel	This plant boiled shoots are used to treat colic in newborns [60].
8	<i>Mentha piperita</i>	Lamiaceae	Naenaye felfeli	This plant, if boiled, is effective on food digestion and could be used for children, as well [61,62].
9	<i>Carum carvi</i>	Apiaceae	Zireh	This plant, if boiled, has carminative effect in newborns [63].

## DISCUSSION

Nowadays, phytotherapy as use of plant products and/or plants total extract is common across the world, even in industrial countries that are considered as pioneers in technology and science, and enjoying synthetic drugs. Many of the plants and spices which are conventionally used to flavor foods contain large amounts of phenolic compounds that exert suitable antioxidant activity [64-73]. The presence of phenolic compounds and fatty acids such as oleic acid, linoleic acid, and palmitic acid in different organs of *F. vulgare* could contribute to its antioxidant property [74,75]. *P. anisum* is a plant with estrogenic properties. The most important effective substance of *P. anisum* is trans-Anethole [76]. *C. carvi* contains bioactive compounds such as couminole, carvene, apigenin, and luteolin [77]. Studies have indicated that *A. graveolens* seed contains n-carovene, carovene, flanderine, and limonene [78-80]. Pepper species have substances such as flanderine, cadinene, piperine, and pyrrolidine [81]. *Z. officinalis* is rich in gingerols and shagoles, among which 6-gingerol and 6-shagoles are strong inhibitors of 5-lipoxygenase [82,83]. As phytochemical study of the plants indicate, the medicinal plants which were pointed to in this article, including *Foeniculum vulgare*, *Pimpinella anisum*, *Acorus calamus*, *Anethum graveolens*, *Zingiber officinalis*, *Lavandula officinalis*, *Capsicum minimum*, *Mentha piperita*, and *Carum carvi*, have phenolic and antioxidant compounds. However, the exact mechanism of these plants is not clear. There are a lot of other plants which possess phenolic compounds and have antioxidant activities [84-98]. If these are the main compounds effective in gastrointestinal disorders, these plants should also be effective in these diseases. It should be noted that gastrointestinal disorders have various reasons [99-101]. Numerousness of the plants of this review study have anti-microbial activity of

important infectious diseases [103-124]. Therefore, various medicinal plants probably act by more than a mechanism, too.

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