

Toxicity Study of Infidol Colic Drop and Sennalax Administered Orally in NMRI Mice

Saira Bano¹, Rabia Ali¹, Naeem Akhtar¹, Amna Qadeer¹, Kashifa Khanum¹, Muhammad Daniyal^{2,3}, Khan Usmanghani^{1,*}, Muhammad Akram⁴, Sultan Ayaz⁴, Kanwal Ahmed⁵

¹Research & Development, Herbion Pakistan (Pvt.) Limited, Karachi, Pakistan

²TCM and Ethnomedicine Innovation & Development Laboratory, School of Pharmacy, Hunan University of Chinese Medicine, Changsha, China

³College of Biology, Hunan Province Key Laboratory of Plant Functional Genomics and Developmental Regulation, Hunan University, Changsha, China

⁴Department of Eastern Medicine, Directorate of Medical Sciences, Government College University, Faisalabad, Pakistan

⁵Department of Basic Medical Sciences, College of Medicine, King Saud Bin Abdulaziz University of Health Sciences, Jeddah, Kingdom of Saudi Arabia

Author's Contribution

All the authors contributed significantly to the research that resulted in the submitted manuscript.

Article info.

Received: February 05, 2018

Accepted: May 01, 2018

Funding Source: Nil

Conflict of Interest: Nil

Cite this article: Bano S, Ali R, Akhtar N, Qadeer A, Khanum K, Daniyal M, Usmanghani K, Akram M, Ayaz S, Ahmed K. Toxicity Study of Infidol Colic Drop and Sennalax Administered Orally in NMRI Mice. *RADS J. Pharm. Pharm. Sci.* 2018; 6(2): 119-123.

*Address of Correspondence Author:
ugk_2005@yahoo.com

ABSTRACT

Objective: The present study was aimed to investigate preclinical oral toxicity of Infidol colic drop and Sennalax product.

Methods: NMRI strains of mice were selected for this study. Animals were divided into two groups i.e. control and treatment group (n=5/sex). Mice were treated orally using gastric gavage with doses (1 or 5 g/kg) of test product i.e. Infidol colic drops and sennalax, for 14 days and observed daily.

Result: The present study demonstrated that the infidol colic drops and sennalax is potentially safe with doses of 1000 & 5000 mg/kg, as it does not cause any apparent morbidity and mortality in the animals.

Conclusion: The test drug (Infidol colic drop and sennalax) could be safe because it did not show any of the side effects or toxicity on experimental animals.

Keywords: Herbal drug, infidol colic drops, sennalax, toxicity.

INTRODUCTION

Plant based medicine are the most popular form of treatment for majority of the world population. In developing countries, to meet their primary healthcare needs, majority of the population still rely on herbal practitioners. The reason behind the consumption of plant-based medicines is due to their accessibility, affordability, patient oriented and having close relation to patient beliefs. General population perceived this treatment as non-toxic and safe due to its natural origin [1]. In 18th century herbal treatment was the most available and preferred therapy, when the era of medicinal

therapy was being started. Many active constituents are derived from herbs are used worldwide as medicinal agents e.g. Silibinin from Milk Thistle (*Silybum marianum*) as liver tonic and Taxols from English yew (*Taxus baccata*) as anticancer agents etc. [2-4]. The Herbal therapy comprises of Chinese, Ayurvedic, Unani, Biochemical, Naturopathic, Native American and African medicine [5]. Herbal drugs have gained a worldwide acceptability as safe and natural therapeutic agent for the treatment of various ailments like obesity, arthritis, diabetes, liver, cardiovascular, and renal diseases [6]. A number of conventional medicines have scientifically proved to be efficient for the management of different disease. For example,

Garlic (*Allium sativum*), as cholesterol lowering agent, Myrrh (*Commiphora myrrha*) and Liquorices (*Glycyrrhiza glabra*) for cough, Periwinkle (*Catharanthus roses*) as anti-cancer, Foxglove (*Digitalis purpurea*) as cardio-tonic in heart failure, and Pilocarpus to treat glaucoma and dry mouth [7-8]. Generally oriental herbology is practiced, in which mixture of various herbs are prepared to obtain maximum therapeutic effects than the single herbs. Most of these drugs are used for the betterment of chronic disorders e.g. Soshiho-tang (polyherbal drug) is used in Korea, China and Japan. This drug contains 7 herbs and has different pharmacological action that includes immunomodulatory, antitumoral, antioxidant, hepatoprotective and anti-inflammatory effects [9]. Hab-e-Kabd Noshadri (polyherbal drug) are used for various liver disorders [10]. The pharmacological properties of these herbal medicines have been extensively studied in different laboratories by different researchers. However certain physicians encourage the use of well documented and scientific proven medicinal plants to aid the medication therapy for better prognosis of the disease but their selection is limited due to their lack of safety profile and safety index of these herbs [11]. Therefore, it is considered that detailed toxicological studies should be carried out to control the abuse and potential toxicities of these folk medicines. The objective of this study was to assess the primary safety information about poly herbal drugs Infidol Colic Drop and Sennalax product being developed for colic pain and further clarifies their safety for clinical use.

METHODOLOGY

Infidol Colic Drop is a product of Herbion Pakistan (Pvt.) Ltd. The product contains *Foeniculum vulgare* (34 mg), *Cuminum cyminum* (34 mg), *Mentha piperita* (34 mg), *Zingiber officinale* (17 mg) and *Ptychotis ajowan* (1.7 mg). Whereas Sennalax capsule also product of Herbion Pharmaceutical Pakistan (Pvt.) Ltd. It contains *Senna cassia* (150mg), *Terminalia chebula* (375mg), *Operculina turpethum* (150mg), *Rosa damascene* (150mg), *Ficus carica* (150mg) and *Vitis vinifera* (150mg), *Convolvuls scamonia* (100mg).

NMRI mice (n= 5/sex) for each product weighing about 25-36 g, 2 weeks were used in this study. Total 30 mice for each product. The animals were obtained from animal facility of Herbion Pak. Pvt. Ltd. They were housed under standard environmental conditions i.e. 25 ± 1 °C, relative humidity 52 - 61% and 12 h dark/light cycle, with lights turned on at 7:00 am and had free access to water and food ad *libitum*. Prior to study animals were acclimatized to laboratory environment for a week.

Animals per sex were housed and appropriate identification on the cages was marked by using cage cards.

After initial weights were taken, the animals were distributed randomly into appropriate groups for conducting the study. The experiments were carried out in the premises of the conventional animal facility of the Herbion Pak. Pvt. Ltd.

For toxicity study animals were divided into two groups i.e. control and treatment group (n=5/sex). Mice were treated orally using gastric gavage with doses (1 or 5g/kg) of test product (Infidel Colic Drop and /or Sennalax) for 14 days and observed daily. Behavioral examination such as locomotion, mortality and morbidity, food intake and changes in body weight were noted.

RESULTS

The Infidol colic drop extract and Sennalax extract did not cause any sign of ill health or overt toxicity in mice at the given doses of 1 or 5 g/kg. No hair loss, color loss, heart rate (chest expansion and retraction), writhing, stretching and fecal abnormality was observed.

No remarkable change in the behavior was noted. All the treated animals retain normal locomotive and socialization activities.

No mortality was observed with doses of 1 and 5 g/kg of Infidol colic drop extract and Sennalax extract.

No significant difference between food intake of treated and control groups was noted.

Body weights of each animal recorded prior to the test products administration (Day 0) and on Days 7, 14. No Significant differences in the weight were observed between groups exposed to Infidol colic

drop extract and those receiving the water (control) presented in Table 1. Body weights of each animal recorded prior to the test item administration (Day 0) and on Days 7, 14. No significant differences in the weight were observed between groups exposed to Sennalax extract and those receiving the water (control), presented in Table 2, 3 and 4.

DISCUSSION

Infidol is a combination of the herbal ingredients that includes *Foeniculum Vulgare* – (aqueous extract of fruit) a traditional herb which aids in digestion by relaxing the intestines and provide relief from colic symptoms. The fruit of *Cuminum cyminum* is known for its anti-spasmodic property. It reduces the spasms and aids in relieving the colic pain and abdominal distress [12]. Leaves of *Mentha piperita* are widely used in herbal medicines to treat various digestive illnesses including cramping and infantile colic. It reduces the calcium influx in intestine due to

which it possesses spasmolytic property [13]. Root of *Zingiber officinalis* is known for its anti-spasmodic and carminative properties. It provides relief from abdominal distress and colic pain [14-16]. Fruit of *Ptychotis ajowan* possesses high level of Thymol. Thymol releases gastric juices which aids in digestion. Sennalax capsule is a combination of the proven herbal ingredients that includes *Senna cassia* (extract of leaves), *Terminalia chebula* (extract of fruit), *Operculina turpethum* (gum), *Rosa damascene* (extract of flowers), *Ficus carica* (extract of fruit), *Vitis vinifera* (extract of fruit).

Sennalax capsule is a combination of the proven herbal ingredients that includes *Senna cassia* (powdered extract of leaves), *Terminalia chebula* (powdered extract of fruit), *Operculina turpethum* (gum), *Rosa damascene* (powered extract of flowers), *Ficus carica* (powdered extract of fruit), *Vitis vinifera* (powdered extract of fruit) and *Convolvuls scamonia* (raisin).

Table 1. Individual Body Weights and Body Weight Changes Infidol colic drops.

Dose Level (mg/kg)	Animal Number and Sex	Body Weight (g) at Day			Body Weight Decreased/ Increased (g) During 2 Weeks
		0	7	14	2
1000	1- Male	26	26	24	2
	2- Male	30	28	28	2
	3- Male	30	30	28	2
	4- Male	28	26	26	2
	5- Male	30	30	30	0
	6- Female	22	20	20	2
	7- Female	24	24	24	0
	8- Female	28	28	28	0
	9- Female	30	30	30	0
	10- Female	24	24	24	0
5000	1- Male	24	24	26	+2
	2- Male	28	28	28	0
	3- Male	28	30	28	2
	4- Male	30	30	30	0
	5- Male	24	26	26	+2
	6- Female	24	26	26	+2
	7- Female	28	28	28	0
	8- Female	30	30	30	0
	9- Female	26	26	26	0
	10- Female	26	26	26	0
Control	1- Male	30	30	30	0
	2- Male	30	31	31	+1
	3- Male	28	29	29	+1
	4- Male	30	29	29	1
	5- Male	28	29	29	+1
	6- Female	28	29	29	+1
	7- Female	31	31	31	0
	8- Female	30	28	28	2
	9- Female	32	30	29	2
	10- Female	29	29	29	0

Table 2. Individual Body Weights and Body Weight Changes Sennalax.

Dose Level (mg/kg)	Animal Number and Sex	Body Weight (g) at Day			Body Weight Decreased/ Increased (g) During 2 Weeks
		0	7	14	
1000	1- Male	24	24	24	0
	2- Male	22	20	20	-2
	3- Male	24	24	22	-2
	4- Male	28	28	28	0
	5- Male	32	30	28	-4
	6- Female	30	30	30	0
	7- Female	30	30	30	0
	8- Female	26	25	25	-1
	9- Female	30	30	30	0
	10- Female	32	32	32	0
5000	1- Male	30	30	30	0
	2- Male	32	32	30	-2
	3- Male	32	30	30	-2
	4- Male	28	28	28	0
	5- Male	26	26	26	0
	6- Female	28	26	26	-2
	7- Female	24	22	20	-4
	8- Female	26	26	26	0
	9- Female	24	24	24	0
	10- Female	20	20	20	0
Control	1- Male	32	30	29	-3
	2- Male	30	29	29	-1
	3- Male	30	28	28	-2
	4- Male	31	31	31	0
	5- Male	28	29	29	+1
	6- Female	28	29	29	+1
	7- Female	28	28	27	-1
	8- Female	29	29	27	-2
	9- Female	32	31	31	-1
	10- Female	28	28	28	0

Table 3. Percentage (%) of Body Weight Infidol colic drop.

Test Substance	Dose Level (mg/kg)	Body weight Decreased (%)	Body Weight Increased (%)	Duration (Days)
Infidol colic drop (aqueous extract)	1000	3.2	0	14
	5000	3.7	0	
Control	Water	3.7	0.7	

Table 4. Percentage (%) of Body Weight Sennalax.

Test Substance	Dose Level (mg/kg)	Body Weight Decreased (%)	Body Weight Increased (%)	Duration (Days)
Sennalax (Powder extract)	1000	3.67	0	14
	5000	0.74	2.23	
Control	Water	1.68	1.35	

CONCLUSION

The present study demonstrated that the Infidol colic drop and sennalax extract is potentially safe with doses 1 & 5g/kg, as it does not cause apparent morbidity and mortality in the animals. However, it did

not significantly increase and decrease the weights of male and female mice as compare to control animals.

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