

CASCARA SAGRADA

*NATURE'S GENTLE ANSWER TO
CONSTIPATION*

© 1995 Copyright

Woodland Publishing Inc.
P.O. Box 160
Pleasant Grove, UT 84062

The information contained in this booklet is for educational purposes only. Please consult a professional health care physician.

TABLE OF CONTENTS

CASCARA SAGRADA		SUMMARY OF ACTIONS ASSOCIATED WITH CASCARA SAGRADA	18
Common Names	4	COMBINATIONS THAT ENHANCE CASCARA SAGRADA	19
Plant Parts	4	PRIMARY APPLICATIONS	19
Active Compounds	4	SECONDARY APPLICATIONS	20
Pharmacology	4	ENDNOTES	21
Vitamin and Mineral Content	5	ADDITIONAL REFERENCES	22
Character	5		
Body Systems Targeted	5		
Herbal Forms	5		
Storage	6		
Regulatory Status	6		
Recommended Usage	6		
Safety	6		
HISTORY	7		
FUNCTIONS	9		
Cascara Sagrada: Colon Tonifier: Nature's Best Laxative	10		
Proper Elimination and Disease Prevention	12		
Do You Have A Healthy Colon?	14		
Transit Time	14		
Hemorrhoids and Cascara Sagrada	15		
Cascara and Gallbladder, Pancreas and Liver Function	15		
Cascara Sagrada: Antibiotic for the Intestines	16		
Insomnia and Cascara	17		
Tumor Related Diseases and Cascara	17		
Cascara Can Help Expel Parasites	17		
Cascara Sagrada: Update	17		

CASCARA SAGRADA

(Rhamnus purshiana)

COMMON NAMES: Chittim Wahoo, Sacred Bark, Holy Bark, Persian Bark, Puchiana Bark, Christ's Thorn, Bear Wood, California Buckthorn

PLANT PARTS: dry bark, (aged)

ACTIVE COMPOUNDS: Anthraquinone glycosides, (emodin, frangulin, iso-emodin, aloe-emodin, and chrysophanol), rhein, aloin, malic acid, tannic acid, cascariosides A, B, C, and D, Hydroxy anthracene derivatives (HAD)

NOTE: Volatile oils can be found in Cascara Sagrada bark that has not been aged for at least one year.

PHARMACOLOGY: It is the free anthraquinone and hydroxyanthracene derivative (HAD) which give Cascara Sagrada its laxative action. These compounds promote more peristalsis in the large intestine and at the same time, trigger a nerve center which facilitates bowel movement. The active constituents of Cascara are absorbed through the small intestine, enter the circulation and stimulate the autonomic nervous system to create peristalsis.

Cascara also contains small amounts of bitter anthracene and aloin compounds which account for the cathartic action of Aloe Vera and Senna as well. Anthracene derivatives have been used for their cathartic action for hundreds of years. Bark that is too young can cause side effects. The ratio of anthrone to anthraquinone changes as the bark ages. For this reason, matured dried bark is preferred for pharmaceutical uses.

The chemical components of Cascara also stimulate the organs of the digestive tract including the gallbladder, pancreas and stomach, which results in increased digestive fluids.

VITAMIN AND MINERAL CONTENT: vitamin A, B-complex, calcium, potassium, inositol, iron, phosphorus, selenium, niacin, sodium, magnesium, essential oils, and trace amounts of manganese, silicon and vitamin C.

CHARACTER: laxative, cathartic, hepatic, digestive tonic, anti-spasmodic, alterative, anthelmintic, cholagogue, febrifuge, antibacterial, and stomachic.

BODY SYSTEMS TARGETED: digestive (stomach, colon, liver, gallbladder and pancreas)

HERBAL FORMS:

Decoction (bark): tea can be taken two to three times daily for constipation.

Tinctures, Fluid Extracts, Syrups or Powders: can be used for coughs, constipation, gallbladder disease, gallstones, gastric disorders, hemorrhoids, indigestion, jaundice and liver congestion.

NOTE: Capsulized herbal forms of Cascara Sagrada are often used due to the extremely bitter taste of the herb. Frequently, pills, powders and fluid extracts are combined with other substances such as capsicum.

Alcoholic Aqueous Extract: This involves using 1 part herb to 1 part water and 2 parts alcohol.

STORAGE: Keep in a dark container in a cool, dry environment.

REGULATORY STATUS:

US: over-the-counter drug status
UK: general sales list
Canada: over-the-counter drug status
France: none
Germany: none

RECOMMENDED USAGE: Dosages of Cascara for adults are usually prescribed on the container. Children and elderly people should take 1/4 to 1/2 the normal dose. Small doses should be taken initially. The herb operates in six to ten hours on an empty stomach. It should be taken after meals or upon retiring. Capsulized forms of the herb are recommended due to its extremely bitter and acrid taste. While the herb is not habit forming, it should not be used indiscriminately.

SAFETY: The bark is considered safe if aged for at least a year. Pregnant women or nursing mothers should not use this herb. The laxative effect can be transferred to the infant. Excess amounts of this herb can cause gripping and intestinal distress. Cascara sagrada is not recommended for anyone who suffers from chronic diarrhea, irritable bowel syndrome or ulcers.

Cascara is considered by some experts to be the safest and most effective laxative available. No toxicity has been found at recommended dosages. Large doses can cause significant diarrhea and intestinal irritation. If cramping or nausea is present with Cascara, adding carminative herbs such as ginger and fennel can neutralize these effects. Long term usage may result in the pigmentizing of melanin on the mucous membranes of the colon. This effect reverses itself with time.

Immature bark can cause cramping and nausea. The bark should be aged for at least one year.

HISTORY

Western diet and lifestyles have resulted in the acceptance of constipation as a normal part of everyday life. The United States consumes more over-the-counter laxatives than any other country in the world; evidence in and of itself that our diets are suffering from a deplorable lack of fiber. Unfortunately, our tendency to habitually take a number of over-the-counter laxatives can create a whole host of undesirable side-effects, including dependence and vitamin depletion.

Cascara Sagrada is considered a mild, effective, natural, herbal laxative for generations. First used by Native Americans, its name means “sacred bark,” in Spanish, a reference to the medicinal part of the plant itself. It is native to the North American continent and can be specifically found growing from British Columbia to Washington state. It grows naturally in coniferous woodlands, mountain ridges and canyon walls. The bark is collected in early spring and summer, when it is easily peeled from the wood and dried in the shade. Cascara is related to the *R. californica* or coffee berry, which is commonly found in coastal ranges of middle and southern California.

The bark is rich in hormone-like oil, which promotes the peristaltic action (pushing out of waste material) in the lower intestinal tract. It is this particular action which makes Cascara Sagrada so effective in treating constipation, both the acute and chronic types.

This herb also became familiar to early Mexican and Spanish priests in California, who actually gave it its current name. A Spanish priest found Native Americans using the herb and was so impressed with its mildness and efficiency, he called it holy bark. Cascara Sagrada is related to Buckthorn and is known by several other names including: Persian Bark, Bear Wood, Holy Bark, Christ’s Thorn,

Purchiana Bark and Chittam Bark. In England, it is referred to as Rhamni Purshianin Cortex and in Germany as Ameriknisch Faulbaumrinde.

In the early 1800's the bark of Cascara became popular among pioneers of the Pacific Northwest. Early settlers made a cold infusion with Cascara, soaking a piece of bark overnight. Laxative preparations were created by boiling fresh bark for several hours. Rhamnus purshiana was described in 1805 and subsequently gained credibility as an herbal medicine.

In 1877, Cascara Sagrada was admitted to the U.S. Pharmacopoeia and is still included in the registry as an official medicine. It was first marketed to the medical establishment by Parke-Davis who introduced it as a bitter fluid extract. The extract was first exported to Europe in 1883. In 1978, it became available pharmaceutically as a nauseous and bitter fluid extract for use in cases of chronic constipation.

The herb is popular for its ability to relieve constipation and tonify the bowel. Perhaps its most valuable property is that once Cascara Sagrada is used, repeated dosages of the herb are not necessary. In other words, the treatment not only alleviates constipation but prevents it as well. The Dispensary of the United States records concerning the herb: "It often appears to restore tone to the relaxed bowel and in this way produces a permanent beneficial effect."¹

Traditionally, small doses of the bark were also taken to ease digestion. Currently, Cascara Sagrada extracts are found in many over-the-counter preparations in this country. It is considered one of the best and safest laxatives available. The fact that it is not habit forming, like so many pharmaceutical laxatives, makes it even more valuable in cases of chronic constipation. Unfortunately, most people are unaware that Cascara is an excellent laxative option. It is not a household term and remains unknown to vast

segments of our population, who continue to use laxatives which have undesirable side-effects.

Dr. Shook considered this botanical to be of tremendous medicinal value. He says, "An immense amount of clinical evidence has been published about the wonderful virtues of this herb. We have used it ourselves over a period of more than thirty years and have known it to completely restore normal and healthy bowel action in many cases of long-standing, habitual constipation, some of them more than 20 years standing."² It is considered the most widely used cathartic on earth.

Interestingly, in Sonora, California the flowers of the Cascara Sagrada plant are a leading source of honey due to their long flowering period of twenty-five days or longer. Cascara honey is very dark, and does have a mild laxative effect.

FUNCTIONS

As mentioned earlier, Cascara Sagrada's primary function is as a cathartic or natural laxative. It promotes easier evacuation and normal stool function by increasing the muscular contractions of the lower bowel. It is considered mild and gentle enough to be used by children and the elderly.³

The writings of Remington in standard reference books on drugs and reports in *Drug Evaluations* of the American Medical Association confirm that Cascara causes vigorous peristalsis in the large intestine with virtually no effect on the small intestine.⁴

Cascara Sagrada also contributes to correcting hormonal imbalances controlled by the pituitary and facilitates the activation of the gallbladder, liver and the pancreas. Small doses of Cascara Sagrada can also stimulate the appetite.

Since Cascara Sagrada is non-habit forming, it can be used for constipated children. Tinctures of the herb have also been used on children's fingernails to discourage nail biting.

Veterinary practitioners consider Cascara Sagrada an excellent cathartic remedy for dogs suffering from chronic constipation.

Current research is looking into the immunosuppressant properties of Cascara in cases of skin grafts. It also may play a role in the treatment of leukemia.

CASCARA SAGRADA: COLON TONIFIER: NATURE'S BEST LAXATIVE

Cascara Sagrada actually tones and strengthens the bowels while it helps to restore normal function. The chemical compounds found in this herb called A-factors promote a kind of contraction-relaxation-contraction cycle of the muscles which comprise the colon walls. These compounds initiate a type of rhythmic harmony and consistency to what would otherwise be irregular contractions of the lower bowel.⁵ This particular action or peristalsis results in the improved muscle tone of the bowel walls. By creating this type of muscular activity, proper bowel function can continue even when the herb is discontinued.

The 1977, Formulary Service of the American Society of Hospital Pharmacists, Inc. emphasized the mild action of Cascara and further remarked that the herb does not lose its efficacy with repeated use.⁶ Frequently, laxatives can become habit forming and increased dosages become necessary with prolonged use. This is not the case with Cascara. It is safe enough to use for chronic or habitual

constipation, while other widely publicized over-the-counter preparations can cause significant dependency.

There are several over-the-counter laxatives that contain some Cascara. It is advised that ingredient lists be carefully scrutinized even if Cascara is included. Some preparations also contain strychnine, podophyllum and aloin, which should be avoided altogether.

Scientists do not fully understand how the A-factors in Cascara act on the colon. The most probable explanation is that these chemical compounds stimulate certain neural centers that regulate colonic muscular activity. One study investigated how Cascara affected a group of elderly patients. In comparing the group who took Cascara to placebo control groups, Cascara demonstrated that it was effective, had good biological tolerance, promoted faster gastro-intestinal transit time and when supplemented with inositol and cyanocobalamine, the herb caused marked increases in levels of vitamin B-12.⁷ Interestingly, many over-the-counter laxatives can result in vitamin deficiencies.

Cascara Sagrada is the ideal choice for constipation. In summarizing its effect on the lower bowel it must be remembered that:

1. Cascara is a mild cathartic and is gentle enough for children or elderly people.
2. Cascara can produce a soft or formed stool in approximately six to eight hours with little or no cramping.
3. It only affects the large intestine and has virtually no effect on the small intestine.
4. It remains effective even with repeated or prolonged use.
5. It is not habit forming. In other words, the colon does not become dependent on its chemical constituents to function properly.
6. It can actually prevent future constipation by tonifying the muscles of the colon.

7. Cascara does not cause the vitamin depletion that is routinely found with some over-the-counter laxatives.

The A-factors or anthraquinones in Cascara make this herb an excellent natural treatment for constipation. Interestingly, if these A-factors are extracted and used separately, they have no laxative effect. Apparently, it is only when the herb is used in its raw, whole form that the desired results are achieved.⁸

Whether taken alone or used in other herbal combinations, Cascara Sagrada is an excellent lower bowel re-builder and cleanser. Several studies suggest that by cleansing and tonifying the bowel, Cascara has contributed to the overall health of numerous people who were otherwise debilitated from the effects of a sluggish colon.

PROPER ELIMINATION AND DISEASE PREVENTION:

Recently the benefits of a healthy colon have come to the forefront of health research. A larger consensus of health practitioners believe that herbs like Cascara Sagrada can keep waste material from clogging the colon, thus helping prevent the onset of several diseases and disorders. In this regard, some people take Cascara Sagrada when they feel like they may be coming down with something to help move toxins out of the bowel quickly.

In addition, the bacteria-laden waste matter that accumulates in the large intestine during period of illness can be expedited from the bowel by the action of Cascara Sagrada.⁹ The peristaltic movements created by Cascara can ease the passage of such material without the usual griping, cramping, diarrhea or constipative rebound seen with other laxatives.

Keep in mind that, beneficial intestinal flora, which live in the lower bowel can keep disease-producing organisms under control. Diets that are rich in meat and/or fatty foods have been linked with colon cancer. Excess fat and meat and a lack of fiber promotes longer storage time of fecal matter in the bowel, thereby increasing the potential of unfriendly bacterial growth. Cancerous tumors can also result from the same colon conditions.

An article on constipation and its connection to breast cancer published in a 1982 edition of the *Saturday Evening Post* made the following statement: "We found that 70 percent of the women we tested had [foreign] chemicals in the breast fluid...the breast cells are in contact with the bloodstream, which will contain certain foreign substances absorbed into the circulation system from the skin, lungs and the gastrointestinal tract."¹⁰

Many current physicians agree that bacterial poisons absorbed from the intestinal tract can contribute to almost every chronic disease known. Bowel mismanagement is believed to cause excess toxicity, which can manifest itself through a number of disease conditions. Poisons that can be found in a toxic colon include: phenol, cadaverian, agamantine, butyric acid, botulin, putrecin, cresol, ammonia and sepsin.

It is also accepted by many health practitioners that weight loss may be inhibited when the colon is sluggish. For this reason, keeping the bowels active may help to expedite the removal of fat.

Colon health is dependent on the maintenance of beneficial intestinal bacteria and proper elimination. In this regard, Cascara Sagrada can prove to be invaluable in its role as a colon cleanser.

DO YOU HAVE A HEALTHY COLON?

Colon disorders and the subject of constipation are one of the most widely discussed topics in our society. Colon related disease is rampant in this country and needs to be addressed. More than 40 million Americans spent over \$500,000,000 last year alone on laxative preparations not including bulking agents.

Colon cancer is the second leading cause of death in the United States. Over 100,000 people die each year from colon cancer. Even the National Cancer Society has come out and publically announced that the developemnt of colon cancer is related to environmental factors. A diet which is high in saturated fats and low in fiber is beleived to be the most significant causal factors.

Colon disorders such as colitis, diverticulitis, Crohn's Disease, ileitis and irritable bowel syndrome affect thousands of people, including a good number of young adults. IBS is the leading digestive disorder and seems to be escalating. Over 100,000 people have colstomies annually. The notion that constipation or improper elimination may be significantly involved in these diseases rarely receives the attention it merits.

TRANSIT TIME

Transit time, which refers to the time it takes for food that has been consumed to be eliminated should ideally be from 24 to 36 hours. Studies have shown that some people have a transit time of 140 hours or up to almost a week. Conventional medical practitioners disagree on the value of transit time and most seem to beleive that the frequency of bowel movements can range from three movements a days to one every two weeks.

Even if you have three bowel movements per day,

you may not be completely eliminating waste from the colon. Eating highly refined foods can result in a buildup of waste material that is never excreted. For this reason, eating plenty of fiber and drinking ample amounts of pure water is crucial to keep the colon clean and disease free.

If constipation or difficult bowel movements are a probelm, Cascara Sagrada may offer a good solution. Combining this herb with whole foods rather than refined ones may permanently solve the problem of constipation and significantly improve health.

HEMORRHOIDS AND CASCARA SAGRADA

Because Cascara Sagrada helps to soften and evacuate the stool with less effort, it is highly recommended for hemorrhoid relief. The straining that often accompanies constipation can be a cause of hemorrhoid formation. Poor bowel function is considered one of the main reason that so many members of our society suffer from hemorrhoids.

CASCARA SAGRADA AND GALLBLADDER, PANCREAS, AND LIVER FUNCTION

This useful botanical can also stimulate secretions of the liver (bile) stomach, pancreas and lower bowel. By so doing, all digestive processes are enhanced. In addition, it is believed that some of the chemical constituents of this herb work on gallbladder ducts which enable them to more easily discharge gallstones.¹¹ By increasing bile secretion, the gallbladder is stimulated.

Some studies have strongly suggested that the anthraquinones found in Cascara can help cure or prevent certain liver diseases.¹² Traditional folk medicine utilized Cascara as a viable treatment for liver disorders. Today, its value as treatment for hepatic disease has been supported by contemporary scientific research.¹³

It was a group of American Eclectic Physicians who originally discovered that this botanical was an effective therapy in cases of jaundice and other liver malfunctions.¹⁴ This particular attribute was first recorded in 1805, however, it was not officially used in medical practices until 1877. Subsequently, Cascara became well known for its laxative effect which would eventually overtake its medicinal use for liver diseases.

CASCARA SAGRADA: ANTIBIOTIC FOR THE INTESTINES?

Certain laxative herbs have also demonstrated antibiotic effects on harmful bacteria, which live in the intestines. When extracts of Cascara Sagrada were administered orally to five healthy male medical students in one study, their bacteria counts of both *E. Coli* and *enterococci* significantly decreased.¹⁵ The anthraquinones contained in this botanical have potent antibacterial properties which fight against pathogenic intestinal gram positive and gram negative bacteria.¹⁶

Some studies suggest that the emodin and rhein constituents of Cascara actually inhibit the respiration processes of certain bacteria. While undesirable bacteria may be destroyed by these compounds, friendly bacteria is not. This good flora is necessary for colon health and helps to keep the immune system strong.

INSOMNIA AND CASCARA SAGRADA

Cascara Sagrada has also been traditionally used to calm the nerves and promote sleep. It contains calcium which can induce sleep and relaxation.¹⁷

TUMOR RELATED DISEASE AND CASCARA SAGRADA

Some of the anthraquinones found in Cascara Sagrada have manifested remarkable anti-tumor activity. The rhein and emodin anthraquinones of Cascara Sagrada demonstrated the ability to block mammary tumors in mice up to 75%.¹⁸ The emodins contained in the herb have anti-leukemic properties and may be valuable in the treatment of leukemia.

CASCARA SAGRADA CAN HELP EXPEL PARASITES

Additional therapeutic properties of Cascara Sagrada which are not commonly known have been attributed to several compounds contained in the herb. Cascara is rich in tri and di-hydroxyanthraquinones. Rhein, one of these compounds has been used in Africa to expel worms.¹⁹

CASCARA SAGRADA: UPDATE:

A compound found in Cascara Sagrada known as quinone emodin is currently being studied for its usefulness

in treating lymphocytic leukemia and Walker's carcinosarcoma tumor system.²⁰ This same constituent is being tested for its immunosuppressant properties for skin graft operations and as a chelating agent to prevent the formation of calcium based kidney stones.

SUMMARY OF SPECIFIC ACTIONS ASSOCIATED WITH CASCARA SAGRADA

- It is an excellent remedy for chronic constipation and can help to prevent future episodes of constipation.
- Cascara bark is rich in hormone-like oils which help promote peristaltic action in the canal of the large intestine only.
- This herb is not habit forming to the colon and can simultaneously cleanse and restore the natural tone of the bowel.
- Cascara Sagrada improves the flow of stomach, liver and pancreas secretions which helps to promote better digestion and elimination.
- Certain compounds in Cascara affect the gallbladder ducts and help the body get rid of gallstones.
- Cascara promotes the flow of bile, which is beneficial to both the liver and the gallbladder.
- The herb itself is considered an invigorating bitter tonic for the entire body.
- Because Cascara helps to soften the stool, it is very beneficial for anyone suffering from hemorrhoids and allows for painless passage.
- Cascara Sagrada has also been shown to help treat worms, insomnia and to act as a natural antibiotic in the intestines.

CASCARA SAGRADA CAN ALSO BE USED IN THE FOLLOWING COMBINATIONS:

Cascara Sagrada, Buckthorn, Licorice, Capsicum, Ginger, Barberry, Turkey Rhubarb, Couch Grass and Red Clover

Cascara Sagrada, Pumpkin Seed, Mandrake, Violet Leaves, and Culver's Root (for parasites)

Cascara Sagrada and Dandelion, Licorice and Wild Yam

Cascara Sagrada and Butternut Root Bark and Frangula

Cascara Sagrada and Irish Moss

PRIMARY APPLICATIONS

- **CONSTIPATION (CHRONIC)**
- **COLITIS**
- **COLON PROBLEMS**
- **DIGESTIVE PROBLEMS**
- **DIVERTICULITIS**
- **GALLBLADDER DISORDERS**
- **GALLSTONES**
- **GAS**
- **GOUT**
- **HEMORRHOIDS**
- **INTESTINAL PROBLEMS**
- **JAUNDICE**
- **LIVER PROBLEMS**
- **PANCREAS FUNCTION**
- **PARASITES**
- **WORMS**

SECONDARY APPLICATIONS

- coughs
- croup
- diverticulitis
- gout
- insomnia
- leukemia
- nerves
- pituitary gland disorders

ENDNOTES

¹“Cascara Sagrada,” *Today’s Herbs*, (Provo, Utah: Woodland Books, January, 1992, Vol. XII, Number 1), 1

²*Ibid.*

³M. Marchese, M. Marcato and C. Silvestrini. “A Laxative Mixture in the Therapy of Constipation in Aged Patients.” *Gironale di Clinica Medica*, (Bologna, Italy: 1982), 63, 850-863.

⁴Daniel B. Mowrey, Ph.D.. *The Scientific Validation of Herbal Medicine*. (New Canaan, Connecticut: Keats Publishing, 1986), 170.

⁵“Ethnomedical Information on *Rubus Idaeus*,” (80.208), Napralert Computer Printout Data obtained from the Illinois School of Pharmacology and Pharmacognosy in Chicago.

⁶Mowrey, 170.

⁷Marchese 850-863.

⁸Mowrey, 170.

⁹Mowrey, 58.

¹⁰“Cascara Sagrada,” *Today’s Herbs*, 3.

¹¹Donald Lepore N.D.. *The Ultimate Healing System*. (Provo, Utah: Woodland Books, 1988), 158.

¹²J. Cudlin, J., M. Blumauerova, N. Steinerova, J. Mateju and V. Zalabak, “Biological Activity of Hydroxyanthraquinones and Their Glucosides Toward Microorganisms.” *Folia Microbiological* (Prague: 1976), 21 (1) 54-57.

¹³Mowrey, 179.

¹⁴*Ibid.*

¹⁵Lendon H. Smith, M.D., E. P. Donatelle, M.D., Vaughn Bryant, Ph.D. James A Duke, and John Heinerman. *Basic Natural Nutrition*. (Provo, Utah: Woodland Books, 1984), 136.

¹⁶Mowrey, 58.

¹⁷“Cascara Sagrada,” *Today’s Herbs*, 2.

¹⁸Smith, 136.

¹⁹Mowrey, 58.

²⁰James Duke. *Handbook of Medicinal Herbs*. (Boca Raton, Florida: CRC Press, Inc., 1985), 404.

ADDITIONAL REFERENCES

- Breimer, D.D. and A. J. Baars. "Pharmacokinetics and metabolism of anthraquinone laxatives." *Pharmacology*, 14, suppl 1, 30-47, 1976.
- Fairbairn, J.W. and M. Moss, *Journal of Pharmacy and Pharmacology*. 22, 584, 1970.
- Kinglet, R., "Studies in the field of Drugs containing Anthracene Derivatives XVII." "The Quantitative Determination of the Anthracene Derivatives of Rhamnus purshiana Bark," *Lloydia* Vol. 31, No. 1, pp. 17-22, 1968.
- Marchesi, M., M. Marcato, and C. Sivestrini. "A Laxative Mixture in the Therapy of Constipation in Aged Patients," *Giornale di Clinica Medica*, (Bologna) 63, 850-863, 1982.
- Morton, J. F., *Major Medicinal Plants: Botany, Culture and Uses*, Charles C. Thomas Inc., Springfield, Illinois, 1977. p. 201.
- Mowrey, D. (1990) *Guaranteed Potency Herbs*, A compilation of writings.
- Patel, R.P. and K.C/ Patel. "Antibacterial activity of cassia tora and cassia obovata." *Indian Journal of Pharmacology*, 19, 70-73, 1957.
- Spoerke, D. G. *Herbal Medications*, Woodbridge Press Publ, Co. Santa Barabara, Ca. 1980. p. 50.
- The Merck Index* 5th ed., Merck and Co. Inc., Rahway N.J., 1940. p. 124.
- Textbook of Pharmacognosy*, J . and A. Churchill Ltd., Rahway, N.J., 1976. p. 90
- Willard, Terry Ph.D. *The Wild Rose Scientific Herbal*. Wild Rose College of Natural Healing, Calgary, Alberta, Canada, 1991. p. 60.
- Williams, L. O., *Drug and Condiment Plants Agricultural Handbook*, 172.