ADVANCED Naturals

PRODUCT MONOGRAPH

Total Body Rapid Cleanse I

Product composition
Medicinal Ingredients:
Each capsule contains:
Milk thistle seed (*Silybum marianum*) 70% / 140 mg silymarin .....200 mg
Red clover flower (*Trifolium pratense*).....150 mg
L-Glutathione .....50 mg
N-Acetyl-L-Cysteine.....50 mg
Artichoke leaf (*Cynara scolymus*) 4:1 extract, equivalent to 200 mg.....50 mg
Burdock root (*Arctium lappa*) 5:1 extract, equivalent to 250 mg. .....50 mg
Ashwagandha root (*Withania somnifera*) 5:1 extract, equivalent to 125 mg..25 mg
Dandelion root (*Taraxacum officinale*) 4:1 extract, equivalent to 100 mg .....25 mg
Mullein leaf (*Verbascum thapsus*).....25 mg
Stinging nettle aerial parts (*Urtica dioica*) 5:1 extract, equivalent to 250 mg.....
.....50 mg
Turmeric root (rhizome) (*Curcuma longa*) 4:1 extract, equivalent to 100 mg.....
.....25 mg

Non-medicinal ingredients: Hypromellose, water

Recommended dose: Adults: Take 2 capsules in the morning on an empty stomach.

Duration of use: Consult a health care practitioner for prolonged use.

Indication: Used in Herbal Medicine to promote a healthy liver.

Contraindications: Do not use if you are pregnant or breastfeeding, or if you have a liver or gall bladder disorder or a bile duct or bowel obstruction.
Do not use if you are allergic to the Asterceae (daisy) family.

Warnings: Keep out of reach of children.
Consult a health care practitioner prior to use if you have diabetes, stomach ulcers or excess stomach acid, or if you are taking antiplatelet medication or blood thinners.
Consumption with alcohol, other drugs or natural health products with sedative properties is not recommended. Consult a health care practitioner if symptoms persist or worsen.

Precautions: Not to be used by children.

Adverse Effects: Hypersensitivity/allergy is known to occur, in which case, discontinue use.
Cross-sensitivity to other Compositae plants has been documented for artichoke. Discontinue use if you develop symptoms of liver trouble.

Overdose: For management of suspected product overdose it is recommended to contact your physician.

Symptoms of Overdose: Has not been investigated nor any reports have been filed.

Supporting Research and Traditional Evidence

Milk thistle seed (*Silybum marianum*) 70% / 140 mg silymarin
The seed of the milk thistle plant has traditionally been used to confer liver protection. Many phytochemicals are present in the seed such as flavonoids, fatty oils and sterols. The active ingredient for liver protection is the mixture of flavanonol derivatives called silymarin. Silymarin is present in the casing of the seed and is mainly composed of the active constituent silybin, making up 60-80% of the flavonoid mixture (Bradley, 2006; WHO, 2002; Gruenwald *et al.* 2007). Pharmacologically, Sylmarin contributes to liver protection by 4 main mechanisms: 1) preventing the entry of liver-damaging substances into the cell by reducing the membrane permeability of the hepatocytes, 2) eliciting antioxidant activity and scavenging free radicals, 3) stimulating ribosomal function to facilitate regeneration of the liver cells and liver tissue, and 4) as an anti-fibrotic to inhibit hepatocyte transformation and deposition of collagen associated with cirrhosis (Bradley, 2006; Blumenthal *et al.* 1998). A systemic review by Tamayo and diamond (2007) compiled several randomized clinical studies assess the effects of milk thistle, standardized to silymarin content, on liver protection. Various types of liver disorders were included in the report, including hepatitis, chronic alcohol liver disease and cirrhosis. Overall the article suggests that milk thistle is effective in conferring liver protection to patients with liver diseases, in particular for alcohol-associated liver diseases. The NHPD (2009) recognizes milk thistle seed as effective for liver protection with a good safety profile when taken at doses up to 3 - 14.5 g dried seed, standardized to140-600 mg silymarin (calculated as silibinin/silybin), per day.

Red clover flower (*Trifolium pratense*)
Red clover flower has been used as a traditional medicine. The flower contains many plytochemicals such as flavonoids such as formononetin, phenolic acids and volatile oils which function to enhance antioxidant properties (Bradley, 2006). The function of red clover flower has been experimentally investigated *in vitro*. A study by Rufer *et al.* (2006) observed that the flower extract contains flavonoids, such as biochanin A and formononetin, which has been suggested to be the main antioxidant chemicals. A second study assessed the effects of formononetin as an antioxidant. The results indicated that an increase in liver enzyme activity and a decrease in lipid peroxidation in both the liver and serum was associated with red clover flower treatment (Mu *et al.* 2009). Overall the study suggests strong evidence for a role as an antioxidant which may help confer liver protection. Red clover flower as been regarded as safe (GRAS) in the US and is recognized as a food by the Council of Europe (Bradley, 2006)

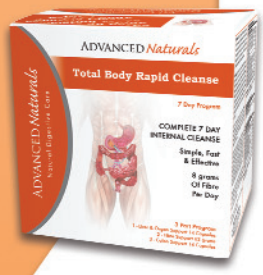
L-Glutathione
In the human body, glutathione (GSH) functions as an antioxidant. Endogenously, the molecule typically exists in the reduced form. When cellular oxidative stress is high, glutathione reacts with free radicals thereby reducing the free radical to a less reactive form. Oxidized glutathione can then be endogenously reduced by interacting with another glutathione molecule to become glutathione disulphide (GSSG) following which the enzyme glutathione reductase converts the disulphide into 2 molecules of GSH which may elicit their antioxidant potential on free radicals once again (As reviewed by Awasthi *et al.* 2009). Supplementation with glutathione could potentially enhance the body's natural free radical scavenging abilities. Clinical studies have been performed to assess the effects of antioxidant supplementation on liver health. In a pilot study, 50 patients suffering from hepatitis C were given a dose of antioxidants containing 300 mg L-glutathione in combination with various natural antioxidants and herbal supplements. The antioxidants were observed to have a beneficial effect on hepatitis-associated inflammation and were well-tolerated (Melhem *et al.* 2005). Overall, clinical evidence suggests that a supplementation with a combination antioxidant therapy may have beneficial outcomes on liver health and function.

N-Acetyl-L-Cysteine
N-acetyl cysteine is a derivative of the amino acid L-cysteine. L-cysteine can be acquired through diet and metabolized to generate N-acetyl cysteine. Scientific evidence suggests a role for N-acetyl cysteine in promoting liver protection. A randomized double-blind placebo-controlled study assessed the effects of N-acetyl cysteine or placebo on liver function. Sixty patients suffering from septic shock were given N-acetyl cysteine or placebo. Significant improvements in the liver blood flow index and overall liver function were observed in the N-acetyl cysteine-treated group when compared to the control group (Rank *et al.* 1998). The results of the study suggest that treatment with N-acetyl-cysteine has a beneficial effect on liver function. A second clinical study assessed the effects of N-acetyl cysteine as an antioxidant in the treatment of ischemia-reperfusion injury caused by liver transplantation. Patients suffering from various liver disorders were randomly assigned to either the placebo-controlled group or N-acetyl cysteine-treated group. The researchers observed that when compared to the placebo-controlled group, treatment with N-acetyl cysteine produced improvements in portal vein and arterial blood flow, a reduction in the abundance of postoperative liver damage and upon histological analysis, a decrease in damage associated with reperfusion (Thies *et al.* 1998). These studies demonstrate a role for N-acetyl cysteine for liver protection with a good safety profile.

Artichoke leaf (*Cynara scolymus*) 4:1 extract
The artichoke has been used in traditional medicine to increase liver health (Blumenthal *et al.* 1998; Hoffman, 2003). The main phytochemical constituents found in the leaf include caffeoylquinic acids, sesquiterpene, aliphatic acids and flavonoids (Gruenwald *et al.* 2007). The caffeoylquinic acid derivative cynarin is thought to elicit pharmacological activity and stimulate liver function in the form of bile secretion (Bradley, 2006). The liver contains various scavenging enzymes which function in neutralizing toxic metabolites. Studies have suggested that the artichoke leaf has an antioxidant effect and can confer liver protection by scavenging free radicals. A study by Mehmetcik *et al.* (2008) assessed the antioxidant effects of artichoke leaf extract in a hepatic necrosis model in rats. The rats were pretreated with 1.5/g artichoke extract per kg daily, following which hepatic insult was chemically induced. Liver enzymes levels were assessed and observed to be decreased in the artichoke-treatment group when compared to control levels. Endogenous antioxidants remained unchanged in the artichoke pretreatment group suggesting that the artichoke leaf extract was responsible for the antioxidant effect (Mehmetcik *et al.* 2008). Scientific evidence in accordance with the NHPD (2008) recognize artichoke leaf as an effective agent to help increase bile secretion to confer liver protection and has demonstrated a good safety profile when taken at recommended doses of 4.5 -10 g dried leaf equivalent/day.

Burdock root (*Arctium lappa*) 5:1 extract, equivalent to 250 mg
Traditional Chinese herbalists have used Burdock root to treat various ailments. The herb acts as a diaphoretic which is thought to be beneficial to treating gallbladder or liver disorders (Bensky *et al.* 2004). The recommended daily dosage for Burdock root is 1.2-18 g dried root per day (NHPD, 2008) and the chemical constituents include phenylpropane derivatives, bithiophenes, sesquiterpenes, triterpenes, organic acids and polysaccharides (Bensky *et al.* 2004). An *in vivo* study was conducted to assess the effects of a crude water extract of A. lappa on liver function in Wistar rats. Liver injury was induced chemically with alcohol or carbon tetrachloride plus alcohol and the rats were given either burdock root or placebo. The burdock-treated group showed improvements in liver function, based on improvements in enzyme activity and a decrease in lipid levels (Lin *et al.* 2002). This evidence suggests that burdock root elicits antioxidant properties which may contribute to its use as a hepatoprotectant. Burdock root has been traditionally eaten as a food, in addition to being used as a medicine in traditional Chinese preparations. The NHPD (2008) recognizes that burdock root has demonstrated a good safety profile when taken at recommended doses.

Ashwagandha root (*Withania somnifera*) 5:1 extract, equivalent to 125 mg
Various parts of the ashwagandha plant have been used in traditional Ayurvedic medicine. It is the root of this plant which elicits pharmacological activity as a hepatoprotectant. The main phytochemical substances present in the root include steroid lactones, phytosterols and alkaloids such as withanine (Williamson, 2002). Studies have been performed to assess the effects of the ashwaganda root as an antioxidant and its effect on liver function. An *in vivo* study was performed by Bhattacharya *et al.* (2000) in which rats underwent a heavy metal load and were subsequently treated with an extract of ashwagandha root. The study assessed the antioxidant properties of the root as amount of lipid peroxidation present in the liver tissue, and liver function was based on the activities of liver enzymes. An increase in dose of root extract correlated with 1) a reduction in lipid peroxidation of the liver tissue and 2) a reversal of injury-induced effects of the heavy metal insult as the hepatic enzyme levels returned to control levels. The results of the study suggest



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that ashwagandha root confers healthy liver functioning through its antioxidant effect. A second study was conducted to evaluate the role of ashwagandha root as an antioxidant liver-protectant. Mice underwent lead-induced hepatic damage then were treated with a solution of root powder and assessed for lipid peroxidation in the liver and liver function. The researchers observed a correlation between antioxidant effect, as determined by a reduction in lipid peroxidation, and liver function, as determined by detoxification enzyme activity in the liver (Chaurasia *et al.* 2000). The results of the study suggest that ashwagandha root elicits antioxidant properties which helps to improve overall liver health. The NHPD (2007) recognizes ashwagandha root as an effective agent which has demonstrated a good safety profile when taken at recommended doses of 6 g of dried root/day.

Dandelion root (*Taraxacum officinale*) 4:1 extract, equivalent to 100 mg

Traditionally, dandelion root has been used in the treatment of various health conditions, specifically hepatobiliary problems. The main physiological action of the herb is to increase bile secretion from the gallbladder which is thought to promote liver health (Bradley, 2006). Active constituents of dandelion root include taraxcoside, sesquiterpene lactones, tripterpenes, phenolic acids, as well as carbohydrates, vitamins and minerals (Bradley, 2006). *In vivo* and *in vitro* studies have been performed to assess the antioxidant effects of dandelion root. One *in vitro* study investigated the effects of dandelion root extract and the activities of several rat liver enzymes involved in the scavenging of free radicals. A dose-dependent antioxidant effect was observed following the treatment of liver microsomes with increasing doses of root extract (Hagymasi *et al.* 2000), suggesting that dandelion root functions as an antioxidant to promote liver health. A second study assessed the effects of a water extract of dandelion root on the activities of hepatic antioxidant enzymes and lipid deposition in diabetic Sprague-Dawley rats. Treatment with dandelion root resulted in a reduction in the amount of cholesterol observed in liver tissue with a corresponding increase in liver antioxidizing enzymes, such as superoxide dismutase (Cho *et al.* 2002). Scientific evidence suggests that dandelion root functions as an antioxidant to contribute to liver health. Recommended daily dosage is 1.5-24 g daily (NHPD, 2008). Dandelion root is commonly used as a coffee substitute and is ingested as a food in Europe (Newall *et al.* 1996; Bradley, 2006). The NHPD recognizes dandelion root as effective to help stimulate bile flow with an established safety profile in when taken in recommended doses.

Mullein leaf (*Verbascum Thapsus*)

Mullein leaf has been implicated in traditional Chinese medicine. The phytochemicals present in the leaf are mainly saponins and mucopolysaccharides with the active chemical being aucubin (Blumenthal *et al.*1998). Several *in vivo* or *in vitro* studies were conducted by Chang (1998) to investigate the role of aucubin on liver biochemistry in animals. Using various forms of chemically-induced liver damage, aucubin treatment was observed to have an effect on improving hepatic physiology in all liver damage models, including reduction of hepatitis B viral DNA replication *in vitro*. Scientific evidence suggests that mullein leaf may be beneficial as a hepatoprotectant. Mullein leaf has demonstrated a good safety profile when taken at doses of 3-4 g of herb/day (Blumenthal *et al.* 1998).

Stinging nettle aerial parts (*Urtica dioica*) 5:1 extract, equivalent to 250 mg

Both the leaves and/or the whole herb of the stinging nettle have been used in traditional herbalism as a nutritive tonic (Blumenthal *et al.* 1998). In traditional herbalism, a nutritive tonic is thought to provide vigor, nourishment to the body and tissues and confer an overall wellbeing (Blake, 2004). Chemical constituents present in the herb include various acids, amines, flavonoids, choline acetlytransferase, β-sitosterol, coumarin and tannins (Newall, 1996). Scientific evidence suggests a role for stinging nettle as an antioxidant. An *in vitro* study by Yener *et al.* (2008) investigated the antioxidant and hepatoprotective effects in rats. Rats were fed 2 ml of from stinging nettle seed oil along with alfatoxin, for hepatic insult. Control animals received no stinging nettle seed extract. Oxidative stress in the liver tissue was measured and higher levels of free radical scavenging enzymes were observed in the seed oil-treated group when compared to the control group. In a second *in vitro* study, rats were exposed to trichloroacetic acid (TCA) as a method to induce liver toxicity. A total of two and a half grams of dried leaves from the stinging nettle and Camellia sinensis, another herbal antioxidant, were fed to the rats along with the TCA. The results of the study suggest that treatment with the herbal antioxidants helped maintain liver function during hepatic insult (Celik and Tuluce, 2007). Furthermore, an *in vitro* study by Türkdoan *et al.* (2003) assessed the effects of stinging nettle seed extract in maintaining liver function following hepatic insult with carbon tetrachloride. Rats were fed decoction extracts derived from 50 g of ground seed. Following liver histochemical analysis, the researchers observed that treatment with the herbal supplement prevented the onset of carbon tetrachloride-induced cirrhosis and fibrosis. Scientific evidence suggests that stinging nettle elicits potent antioxidant potential and functions as a hepatoprotectant following liver injury. Scientific evidence suggests a role for stinging nettle as a liver protectant and the NHPD (2008) recognizes stinging nettle as a traditional nutritive tonic, with a good safety profile when taken in recommended doses of 1.2-18 g daily.

Turmeric root (rhizome) (*Curcuma longa*) 4:1 extract, equivalent to 100 mg

Turmeric root has traditionally been used as a choleretic (Blumenthal *et al.* 1998). The constituent in turmeric root responsible for its choleretic properties is curcumin which acts on the gallbladder to increase bile secretion. The herb root also contains chemicals such as volatile oils and other dicinnamoylmethane derivatives (Blumenthal *et al.* 1998). An *in vivo* study was conducted to evaluate the antioxidant effects of turmeric root on chemically-induced liver injury in Sprague-Dawley rats. Following liver injury, the rats were dosed with curcumin, saikosaponin (the active phytochemical found in bupleurum root which is also present in this formulation of Total Body Rapid Cleanse), or a combination of the two phytochemicals. Following treatment, the liver and serum were assayed for enzyme activity and lipid content. The researchers observed that curcumin and saikosaponin both had positive effects on liver function and cholesterol levels, as determined by a decrease in liver fibrosis, inflammation and necrosis following treatment with the phytochemicals. Moreover, a combination of the herbal constituents elicited the greatest effects on liver protection (Wu *et al.* 2008) suggesting that bupleurum root and turmeric root each contribute to liver health, and demonstrate an additive effect when taken together. Studies have also been conducted to assess the antioxidant properties of turmeric root and how they contribute to liver health and function. In an *in vitro* study, curcumin was observed to stimulate an increase in liver detoxification enzymes which can also be induced by known antioxidants. The study investigated the transcriptional regulation of these liver detoxification enzymes, and the results indicate that like known antioxidants, curcumin works in a similar manner to increase the levels of detoxification enzymes within the liver (Nishinaka *et al.* 2007). Turmeric root may be an effective agent for liver protection with a good safety profile when taken at recommended doses of 1.5 – 3 g of daily (Blumenthal *et al.* 1998).

Ingredient Summary:

Milk thistle seed (*Silybum marianum*) 70% / 140 mg silymarin
- Confers liver protection.

Red clover flower (*Trifolium pratense*)
- Demonstrates antioxidant properties which may help to improve liver healt

L-Glutathione
- Provides antioxidant properties which may support liver health.

N-Acetyl-L-Cysteine
- Provides antioxidant properties to support liver health.

Artichoke leaf (*Cynara scolymus*) 4:1 extract
- Traditionally used to increase bile secretion and confer liver protection.

Burdock root (*Arctium lappa*) 5:1 extract, equivalent to 250 mg
- Traditionally used as a diaphoretic to expel liver-harming toxins.

Turmeric root (rhizome) (*Curcuma longa*) 4:1 extract, equivalent to 100 mg
- Traditionally used to help stimulate bile secretion to promote healthy liver function.

Dandelion root (*Taraxacum officinale*) 4:1 extract, equivalent to 100 mg
- Helps stimulate bile secretion to promote healthy liver function.

Mullein leaf (*Verbascum Thapsus*)
- Contributes to liver health.

Stinging nettle aerial parts (*Urtica dioica*) 5:1 extract, equivalent to 250 mg
- Traditionally used as a nutritive tonic which may confer liver protection.

Ashwagandha root (*Withania somnifera*) 5:1 extract, equivalent to 125 mg
- Demonstrates antioxidant properties which may help to improve liver health.

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PRODUCT MONOGRAPH

Total Body Rapid Cleanse II

Product composition
Medicinal Ingredients:
Each scoop (5 g) contains:
Acacia gum fibre (*Acacia senegal*), organic .....5000 mg

Non-medicinal ingredients: Hypromellose, water

Recommended dose: Adults: Take 1 level scoop (5 g) mixed in 1 glass (250 ml) of water or juice in the morning and 1 level scoop (5 g) mixed in 1 glass (250 ml) of water or juice in the evening.

Duration of use: Consult a health care practitioner for prolonged use.

Indication:
- Source of dietary fibre as a part of a high fibre diet to support bowel health.
- Source of dietary fibre to support bowel health.
- Source of dietary fibre to support digestive health.
- Helps to support digestive health.
- Promotes bowel movement.
- Gentle relief of occasional constipation (irregularity).

Contraindications: Do not take within 2 hours of another medicine.

Warnings: Keep out of reach of children.
Consult a health care practitioner prior to use if you are pregnant or breastfeeding.
Consult a health care practitioner if constipation persists after one week of use.
Drink plenty of water while using this product.

Precautions: Not to be used by children.

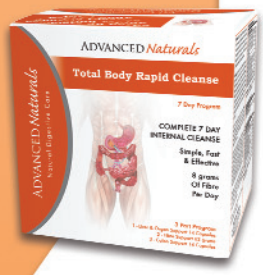
Adverse Effects: None reported.

Overdose: For management of suspected product overdose it is recommended to contact your physician.

Symptoms of Overdose: Has not been investigated nor any reports have been filed.

Supporting Research and Traditional Evidence

Acacia gum fibre (*Acacia senegal*), organic
Acacia gum (*Acacia senegal*), also known as gum arabic, provides a source of soluble fibre to this product, aiding in constipation. Clinical trials have been conducted to assess the safety of acacia as a daily supplement. In a randomized prospective 3-month study to assess the effect of gum arabic oral treatment on the metabolic profile of patients with chronic renal failure (CRF), 46 subjects (36 patients with CRF managed by hemodialysis; 10 healthy subjects) received either low-protein diet (LPD) and 50 g/day gum Arabic (n=12 patients with CRF); LPD, gum arabic, iron (ferrous sulphate, 200 mg/day), and folic acid (5 mg/day) (n=14 patients with CRF); LPD, iron, and folic acid treatment (n=10 patients with CRF); or normal diet and gum Arabic 50g/day (n=10 healthy subjects). Blood samples for the analysis of urea, creatinine, uric acid, calcium, and phosphorus were collected from each subject before admission to the study and twice per month (pre-dialysis) for 3 months. Serum creatinine levels were significantly decreased in Arabic gum users vs. the control group, suggesting that fermentation of the gum arabic by colonic bacteria aids in the reduction of the host's nitrogen waste products. However, no changes in serum uric acid levels were observed between the two treatment groups. Half of the subjects reported flatulence, which generally subsided after the second week of treatment; all patients completed the study (Ali *et al.* 2008). In a second randomized prospective 4-week study to compare the cholesterol-lowering effects of two different mixtures of dietary fibre, 29 patients with hypercholesterolemia received either a medium viscosity mixture of water-soluble dietary fibre (WSDF: psyllium, pectin, guar gum and locust bean gum) or an equal amount of a low viscosity WSDF derived from acacia gum. WSDF treatments were provided in a low-calorie powder form for mixing into beverages. Patients were instructed to mix the powders into their usual beverages and to



consume the beverage three times daily (5 g WSDF per serving) for 4 weeks. Patients consumed their regular fat-modified diets. Decreases in plasma lipid parameters were observed in the WSDF mixture (plasma total cholesterol decreased by 10%; low-density lipoprotein cholesterol decreased by 14%). No changes in lipid parameters were observed in the group treated with acacia gum. The data supported previous findings that diets rich in select WSDF may be useful in hypercholesterolemia (Jensen *et al.*1993). Furthermore, in a third randomized prospective 31-day study to compare the effects of psyllium, gum arabic, and placebo in patients with incontinence, supplementation with dietary fibre from psyllium or gum arabic was associated with decreased percentage incontinent stools and improved stool consistency. Patients were randomly assigned to receive psyllium, gum arabic, or a placebo, and recorded their diet intake and stool characteristics for 8 days before and at the end of the study. The dietary fibre supplements appeared to be completely fermented, as indicated by non-significant differences in stool total fibre, SCFAs and pH (Bliss DZ *et al.* 2001). Scientific evidence suggests acacia gum fibre is well-tolerated when taken as a daily supplement.

Ingredient Summary:

Acacia gum fibre (*Acacia senegal*), organic

- Acacia gum is included in this product as a source of soluble fibre, aiding in constipation.

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Total Body Rapid Cleanse III

Product composition

Medicinal Ingredients:

Each capsule contains:

Magnesium (magnesium hydroxide) .....125 mg
Cape Aloe leaf latex (*Aloe ferox*) .....125 mg
Rhubarb root (*Rheum palmatum*).....175 mg
Slippery Elm bark (*Ulmus rubra*) .....25 mg
Marshmallow root (*Althaea officinalis*) .....25 mg
Fennel seed (*Foeniculum vulgare*).....25 mg
Ginger root, rhizome (*Zingiber officinale*) .....25 mg
Triphala: a blend of:
Indian gooseberry fruit (*Emblica officinalis*).....8.33 mg
Belleric myrobalan fruit (*Terminalia bellirica*) .....8.33 mg
Chebulic myrobalan fruit (*Terminalia chebula*).....8.33 mg

Non-medicinal ingredients: Hypromellose, water

Recommended dose: Adults: Take 2 capsules in the evening on an empty stomach.

Duration of use: Can be used for up to 30 days. For prolonged use consult a health care practitioner. Allow 6-12 hours for laxative effect to occur.

Indication:

- Supports the process of a colon cleanse by relieving occasional constipation
- Relieves occasional constipation
- Promotes bowel movement by direct action on the intestine
- Promotes bowel movement
- Laxative
- Cathartic

Contraindications: Do not take within 2 hours of another medicine.
Do not use if you are pregnant or breastfeeding. Do not use if you currently have abdominal pain, nausea, fever, vomiting, hemorrhoids, or chronic gastrointestinal disorders. Do not use if you are taking licorice root, thiazide diuretics, corticosteroids, or drugs that may aggravate electrolyte imbalance. Do not use within two hours of other medicines. Do not exceed recommended dose. Do not use prior to or after recent surgery.

Warnings: Keep out of reach of children.

Precautions: Not to be used by children.

Adverse Effects: Reduce dose or discontinue use if abdominal cramps, spasms, and/or pain occur.

Overdose: For management of suspected product overdose it is recommended to contact your physician.

Symptoms of Overdose: Has not been investigated nor any reports have been filed.

Supporting Research and Traditional Evidence

Magnesium (magnesium hydroxide)

Magnesium is the fourth most abundant cation in the body and is stored mainly intracellularly or in the bones (Rude and Singer, 1981). Physiologically, magnesium is absorbed along the entire length of the small intestine and to some extent within the large intestine (Brannan *et al.* 1976). Magnesium can be taken safely in doses up to 500 mg/day for healthy adults (NHPD, 2007). Gastrointestinal effects associated with magnesium deficiency include dysphagia, or a difficulty swallowing. The magnesium deficiency associated with dysphagia was found to be reversible upon magnesium supplementation (Flink, 1978). Clinical studies have been performed to assess the impact of a combination laxative treatment consisting of magnesium hydroxide and senna syrup, a traditionally used laxative. One hundred and nineteen constipated children were treated with either a bulk laxative or a combination of magnesium hydroxide/senna syrup at an average dose of approximately 4 teaspoons/day for 2 months. Following the completion of the study, 63% of the children taking the Mg/senna combination were no longer constipated suggesting that treatment with magnesium hydroxide in addition to herbal laxative remedies may contribute to increased bowel movements (Borowitz *et al.* 2005). A randomized, placebo-controlled, double-blind, crossover pilot study was conducted to evaluate the effects of magnesium hydroxide as a laxative in a dose dependent-manner. Six patients were given either placebo or magnesium hydroxide at doses of 1200, 2400 or 3600 mg/day for 5 days. The patients' stool output was monitored and the results suggested that magnesium hydroxide is effective as a laxative in a dose-dependent manner (Donowitz and Rood, 1992).The NHPD (2007) recognizes magnesium as a dietary supplement which contributes to the maintenance of good health, and scientific studies have demonstrated a good safety profile and a potential role for magnesium hydroxide as a laxative when taken at doses up to 500 mg/day.

Cape Aloe leaf latex (*Aloe ferox*)

Aloe leaf has been traditionally used as a laxative when taken orally, as well as a treatment for certain skin conditions when applied topically (NHPD, 2006; Newall *et al.* 1996). Aloe contains anthrone-C-glycosides (Van Wyk *et al.* 1995) which are metabolized to yield 1,8-dihydroxy-anthracene, a pharmacologically active metabolite. 1,8-dihydroxy-anthracene has a stimulatory influence on the colon resulting in colonic motility. Propulsive contractions increase the rate of passage of material through the intestine. Alongside the increase in colon contractions, aloe also promotes chloride secretion into the intestinal lumen which thereby increases water secretion and electrolyte diffusion into the lumen (Blumenthal *et al.* 1998). The anthraquinones present in aloe have stool-softening properties but do not disrupt the normal pattern of fecal excretion (Gruenwald *et al.* 2007). The recommended dose for aloe leaf is standardized to 20-30 mg hydroxyanthracene derivatives/day, or the smallest dosage needed to produce a laxative (Blumenthal *et al.*1998). The NHPD (2007) has recognized the dried leaf gel of Aloe ferox and effective as a natural laxative with a good safety profile at doses of 50-250 mg per day. Clinical evidence also suggests a role for Aloe ferox as a laxative. One placebo-controlled, double-blind clinical trial assessed the effects of a combination laxative therapy consisting of aloe, psyllium and celandine in 35 chronically constipated patients. The ingredients in the study preparation have similar effects on the gastrointestinal tract as the herbs present in this formulation of Total Body Rapid Cleanse. Psyllium has high mucilage content, similar to slippery elm bark, and celandine is a traditional herb used to soothe gastric irritation (Blumenthal *et al.* 1998). The study confirmed the effects of herbal combination therapy as an effective laxative for the treatment of constipation (Odes and Madar, 1991).

Rhubarb root (*Rheum palmatum*)

Various parts of the rhubarb plant have been used traditionally for the treatment of certain ailments and as foods. Rhubarb stem has been classified as a food by the Council of Europe, and the root has been traditionally used to treat gastrointestinal irregularities, such as constipation (Newall *et al.* 1996). Rhubarb root, like *Aloe ferox*, contains β-glycosides, including 1,8-dihydroxy-anthracene. 1,8-dihydroxy-anthracene is the active constituent and is responsible for the laxative properties of rhubarb (Bradley, 2006). This anthraquinone has a stimulatory influence on the colon resulting in colonic motility through propulsive contractions to increase the rate of passage of material through the intestine and reduce liquid absorption (Blumenthal *et al.* 1998). The recommended dose for Rhubarb root is 200 mg - 1000 mg/day to be efficacious as a laxative with a good safety profile (Newall *et al.* 1996). A recent review article summarized a few clinical studies which were not published in English. These studies focused on rhubarb root as a traditional Asian medicine. The article suggested that rhubarb root helped alleviate the symptoms associated with the treatment of various gastrointestinal conditions in a clinical setting, specifically gastric bleeding and enteroparalysis as well as contributing to the natural pH of the gastric mucosa (Chen and Wong, 2009).

Slippery Elm bark (*Ulmus rubra*)

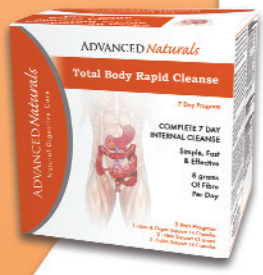
Slippery elm bark has been used traditionally to treat certain ailments such as constipation. The inner rind of the bark contains large amounts of mucilage. When ingested this mucilage mixture of polysaccharides coats the enteric lining. The ability of the mucilage to coat the gastrointestinal tract makes the herb useful as a traditional treatment for gastric inflammation by acting as a demulcent (Gruenwald *et al.* 2007; Bradley, 2006). The effective recommended dose for slippery elm is a decoction made with ethanol in a ratio of 1:8 and a daily dose of 4 -16 ml of the decoction (Gruenwald *et al.* 2007). A study by Langmead *et al.* (2002) evaluated the antioxidant properties of a slippery elm water extract in the treatment of irritable bowel syndrome. A dose-dependent scavenging of superoxide was observed suggesting that slippery elm may be implicated in the treatment of irritable bowel syndrome by reducing colonic inflammation-associated oxidative stress.

Marshmallow root (*Althaea officinalis*)

Marshmallow has been traditionally for the treatment of certain ailments and has also been classified as a food in Europe and the United States (Newall *et al.* 1996). The medicinal parts of the plant include the leaves, roots, syrup and flowers. Marshmallow root, in particular has been traditionally used in treatment of mild inflammation of the gastric mucosa. Constituents of the root include various mucilage polysaccharides, pectin, few tannins and asparginines. Marshmallow root works in a similar manner as slippery elm bark. High levels of polysaccharide mucilage help reduce gastric inflammation by coating and soothing irritation of the enteric lining (Hoffman, 2003). The recommended effective dose of Marshmallow root is 6 -15 g of root/day with a good safety profile (Blumenthal *et al.*1998).

Fennel seed (*Foeniculum vulgare*)

Fennel seed has been used in traditional medicine and has been implicated in the treatment of many gastrointestinal problems. Fennel seed works on the gastrointestinal tract to induce motility within the gastrointestinal lumen. High concentrations have been observed to exhibit an antispasmodic effect on the colon (Blumenthal *et al.* 1998). The seed is chemically composed of fixed oils, phenylpropanoids, flavonoids, coumarins, various glycosides and essential oils, mainly anethone, fenchone and estragone (Blumenthal *et al.* 1998; Bradley, 2006). Researchers have assessed the effects of fennel seed as part of a combination laxative for the treatment of constipation. A randomized, double-blind, placebo-controlled, single center study was conducted in which 92 elderly patients living in a nursing home were administered a daily tea concoction containing a combination of herbal constipation therapy, including fennel seed. The treatment duration lasted 28 days and herbal treatment resulted in an increase in the number of bowel movements when compared to placebo-control (Bub *et al.* 2006). The recommended dose of fennel is 0.4 g of dried seed, 3 times per day for durations up to 2 weeks (NHPD, 2008). Scientific evaluation



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along with traditional evidence suggests that fennel seed, as part of a combination herbal therapy, may be effective as a laxative with a good safety profile when taken at recommended doses.

Ginger root, rhizome (*Zingiber officinale*)

Traditionally ginger root has been used to treat gastrointestinal ailments such as dyspepsia and nausea (Blumenthal *et al.* 1998). Ginger helps alleviate gastrointestinal discomfort by increasing peristalsis and gastric tone (Bradley, 2006). The root chemistry is comprised of various phytochemicals including starch, lipids, oleo-resins, such as gingerol, and volatile oils, such as zingiberene, ar-curcumene, β-sesqiuphellandrene and β-bisabolene. Studies have been conducted to assess the pharmacological properties and clinical effects of ginger. The effects on gastric motility have been evaluated in healthy volunteers. Subjects were given either 1200 mg of ginger root/day or placebo. The results indicated an increase in the frequency of antral contractions within the upper intestinal tract suggesting that ginger may be effective as a laxative in healthy subjects (Wu *et al.* 2008). Furthermore, researchers have also assessed the effects of ginger root as part of a combination laxative for the treatment of constipation. A randomized, double-blind, placebo-controlled, single center study was conducted in which 92 elderly patients living in a nursing home were administered a daily tea concoction containing a combination of herbal constipation therapy, including ginger root. The treatment duration lasted 28 days and resulted in an increase in the number of bowel movements over the treatment duration when compared to placebo-control (Bub *et al.* 2006). Scientific and traditional evidence suggest that ginger root may be effective as a laxative. The Council of Europe and the US have classified ginger as a GRAS (Generally Recognised as Safe) food and states it is generally used as a spice with an established safety profile at doses of 0.5-2 g dried rhizome, per day (Newall *et al.* 1996; NPHD 2008).

Triphala: a blend of:

Indian gooseberry fruit (*Emblica officinalis*)

Various parts of the Indian gooseberry plant have been traditionally used in Ayurvedic medicine. The leaves of the plant traditionally are used to treat respiratory ailments, while the fruits have been used to alleviate gastrointestinal discomfort, such as constipation and vomiting. The fruits are also a good source of nutrition (Williamson, 2002). The major constituents of *E. officinalis* are polyphenols, ascorbic acid, cytokinins and fatty acids. The fruit exhibits antioxidant activity in the presence of tannins to maintain gastrointestinal health. Studies have been conducted to assess the antioxidant properties of *E. officinalis*. A study by Pozharitskaya *et al.* (2007) quantified the free-radical scavenging activity and found it to be similar to that of ascorbic acid. A study by Bandyopadhyay *et al.* (2000) assessed the impact of seeds from *E. officinalis* as an antioxidant for the treatment of gastric ulcers in Sprague-Dawley rats. Prior to gastric injury, the rats were treated with dried gooseberry seed in increasing doses for 10 days. The antioxidant effect was measured by determining the abundance of superoxide dismutase, a free-radical scavenger in serum, abundance of lipid peroxidation and mucous secretion/ulcer formation of the gastric tissue. The results indicated that an increase in antioxidant activity correlated with a reduction in the formation of ulcers in the pre-treatment group. Lastly, a study by Scartezzini *et al.* (2006) suggests that 45-70% of the antioxidant activity of *E. officinalis* is derived from the high levels of vitamin C which it contains. In traditional Ayurvedic medicine, the recommended doses of Gooseberry fruit are 3-6 g of powder/day (Williamson, 2002). *E. officinalis* has demonstrated a good safety profile has been effectively used for the treatment of gastrointestinal discomfort as an ingredient in Triphala (Dhanoa, 2001).

Belleric myrobalan fruit (*Terminalia bellirica*)

In traditional Ayurvedic medicine, *Belleric myrobalan* fruit has been used as a "health-harmoniser". The fruit of *T. bellerica* has been used in the treatment of various conditions affecting the liver, vasculature system, respiratory system, skin and gastrointestinal tract. The active constituents are mainly triterpenoids, such as β- sitosterol, and polyphenols (Williamson, 2002). Studies have been conducted to assess the role of *T. bellerica* in the treatment of gastric ulcers and obesity. Studies have implicated an antioxidant activity of Belleric myrobalan fruit in the presence of tannins which are present in many of the additional herbs in this formula. A study by Soubir (2007) evaluated the antioxidant activities of a number of ethanolic plant extracts. Of the plant extracts assessed, *T. bellerica* was found to be the second most potent antioxidant, second only to Averrhoea carambola, commonly known as starfruit. The blend of *T. bellerica*, *E. officinalis* and *T. chebula* is known in Ayurvedic medicine as Triphala. *T. bellerica* has been traditionally used for the treatment of gastrointestinal problems in doses from 3 – 6 g of powder/day with an established good safety profile (Dhanoa, 2001).

Chebulic myrobalan fruit (*Terminalia chebula*)

T. chebula has been used in traditionally Ayurvedic medicine in combination with *T. Bellerica* and *E. Officinalis* as Triphala. Various parts of the plant have been used in traditional medicine, including the fruit, leaves and stem. The fruits of the plants have been recognized as natural laxatives (Williamson, 2002). Major pharmacologically-contributing phytochemicals include triterpene glycosides, tannins and polyphenols. Antioxidant effects associated with *T. chebula* may help contribute to a healthy gastrointestinal system by reducing gastric inflammation. A study by Chalise *et al.* (2010) investigated the effects of 15 traditionally used fruits and determined their corresponding polyphenol content and antioxidant properties. *T. chebula* was one of the 15 fruits assessed and it was observed that *T. chebula* contained the highest levels of polyphenols of any of the fruits. The level of antioxidant activity of *T. chebula* was also found to be one of the highest when compared with the antioxidant effects of vitamin C, a potent antioxidant. The only fruits to generate similar antioxidant effects were *E. officinalis* and *T. bellerica* which are also present in Triphala. This study suggests that high levels of polyphenols contained in the fruits of Triphala promote antioxidant activity which may contribute to good intestinal health. A second study assessed the role of various medicinal plants and their effects in treating gastric ulcers. Rats were treated with increasing doses of *T. chebula* fruit, *T. bellerica* fruit or *E. officinalis* fruit extract. Chemical ulceration was induced prior to treatment and treatment duration lasted 7 days. Following treatment, gastric tissue was isolated from the rats and assessed for free radical scavenging enzyme activities in the presence or absence of treatment. The mucin content in the stomach tissue was assessed to determine the effects of the herbal extracts on gastric ulcers. The results indicate that extract from the fruits of *T. bellerica*, *T. chebula* and *E. officinalis* all exhibited antioxidant activity and increased the rate of gastric healing similar to a positive control for ulcer treatment (Bhattacharya *et al.* 2007). Traditional and scientific evidence has suggested the use of *T. chebula* as a potent herbal antioxidant with a good safety profile which helps promote gastrointestinal health.

Ingredient Summary:

Magnesium (Magnesium hydroxide)
- Contributes to the maintenance of good health with a potential role for use as a laxative.

Cape Aloe leaf latex (*Aloe ferox*)
- Traditionally used as a laxative.

Chinese Rhubarb root (*Rheum palmatum*)
- Traditionally used as a laxative.

Slippery Elm bark (*Ulmus rubra*)
- Traditionally used to reduce mild inflammation of the gastric mucosa.

Marshmallow root (*Althaea officinalis*)
- Traditionally used to reduce mild inflammation of the gastric mucosa.

Fennel seed (*Foeniculum vulgare*)
- Traditionally used to increase gastric motility.

Ginger root, rhizome (*Zingiber officinale*)
- Traditionally used to increase gastric motility.

Triphala: a blend of:

Indian gooseberry fruit (*Emblica officinalis*)
- Provides antioxidant properties and traditionally used to support gastrointestinal health.

Belleric myrobalan fruit (*Terminalia bellerica*)
- Provides antioxidant properties and traditionally used to support gastrointestinal health.

Chebulic myrobalan fruit (*Terminalia chebula*)
- Provides antioxidant properties and traditionally used to support gastrointestinal health.

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