

# GI-Microb X™

Includes black walnut and pomegranate traditionally used in Western and Chinese herbal medicine respectively for their vermifuge action to help remove intestinal threadworms/pinworms. Supports gastrointestinal health.



1 Vegetarian Hard Capsule

## OVERVIEW

- > Comprehensive formulation of herbal extracts, including, Pomegranate and Black Walnut – traditionally used in Chinese and Western herbal medicine, respectively, to help remove intestinal threadworms
- > Vegan Friendly
- > Contains 4.5 g of a blend of Pomegranate hull and fruit to support gastrointestinal system health and provide antioxidant support
- > Also contains wormwood and two different types of Berberis

Active Ingredients (per vegetarian hard capsule)	
<i>Punica granata</i> (Pomegranate) extract dry concentrate	100 mg
From dry hull	1500 mg (1.5 g)
<i>Standardised to punicalagins (A+B) 40%</i>	
<i>Punica granata</i> (Pomegranate) extract dry concentrate	50 mg
From dry fruit	750 mg (0.75 g)
<i>Juglans nigra</i> (Black Walnut) extract dry concentrate	75 mg
From dry fruit hull	375 mg
<i>Artemisia annua</i> (Sweet Wormwood) extract dry concentrate	75 mg
From dry herb	750 mg (0.75 g)
<i>Berberis aristata</i> (Indian Barberry) extract dry concentrate	50 mg
From dry root	2000 mg (2 g)
<i>Berberis vulgaris</i> (Barberry) extract dry concentrate	25 mg
From dry root	275 mg

<b>Pack Size</b>	60
<b>Serving Per Pack</b>	30 serves

Allergen Information	
No added gluten, dairy, lactose or soy.	

Excipients
Purified water, Magnesium stearate, Colloidal anhydrous silica, Maltodextrin, Hypromellose, Medium chain triglycerides (from coconut oil), Microcrystalline cellulose

Directions for Use
Take 2 capsules per day or as directed by your healthcare professional.

Prescribing Considerations
<ul style="list-style-type: none"> <li>• Berberine may enhance the activity of bilirubin-displacing medications and those metabolised via hepatic CYP3A4 enzymes.<sup>1,2</sup></li> <li>• Contraindicated in individuals hypersensitive to members of the Asteraceae family.<sup>3</sup></li> <li>• Caution advised for use in individuals with gallstones or biliary disorders.<sup>3</sup></li> </ul>

Warnings
<ul style="list-style-type: none"> <li>• Contains tree nuts.</li> <li>• Do not use if pregnant or likely to become pregnant.</li> <li>• Not recommended for lactating women.</li> <li>• If symptoms persist, talk to your health professional.</li> </ul>

Designed and formulated in Australia.



No Added Gluten



No Added Soy



No Added Dairy



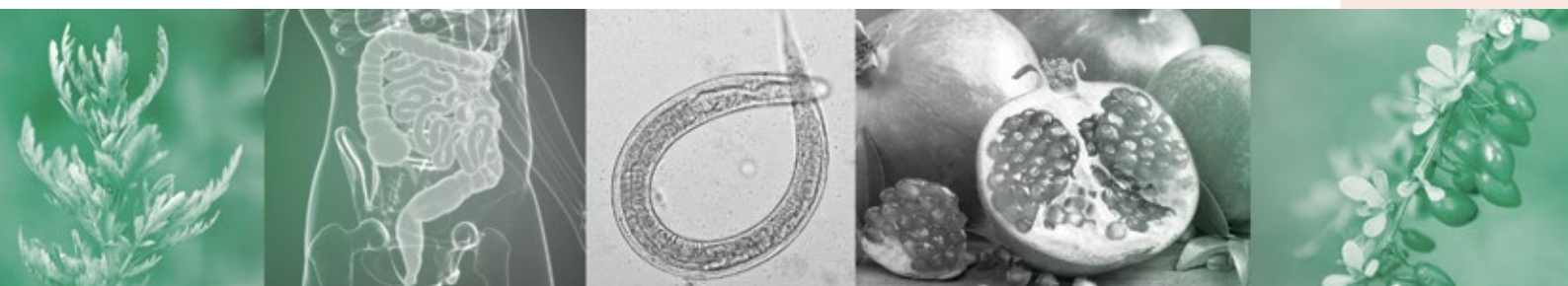
Vegetarian Friendly



Vegan Friendly



No Artificial Flavours or Colours



## EDUCATION

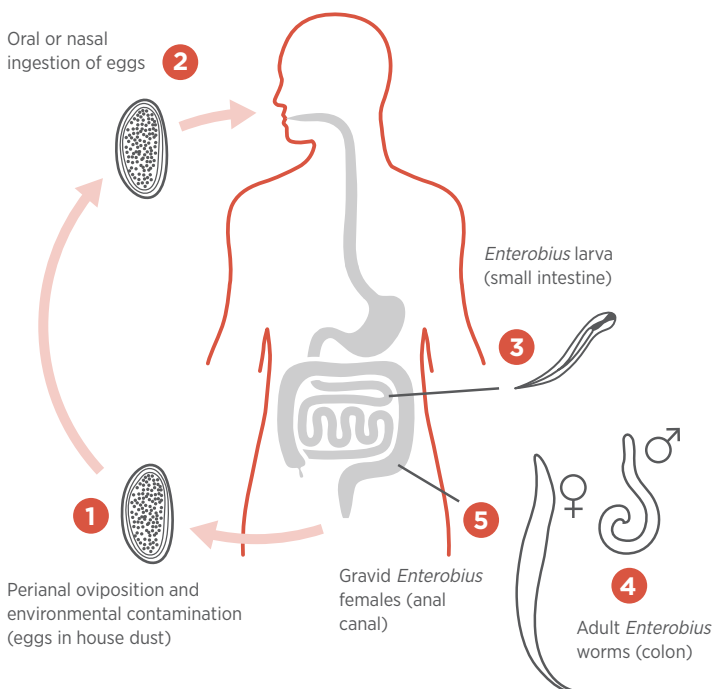
Parasitic infections are a highly prevalent global health issue that can cause inflammation, immune activation, nutritional deficiencies and psychological distress as well as many challenging clinical symptoms.<sup>1-3</sup> Effectively eradicating parasites and the associated clinical symptoms can be difficult in many cases due to chronic parasitic exposure causing ongoing reinfection and drug resistance development.<sup>3</sup>

### Pinworm Infection

Pinworm (*Enterobius vermicularis*), also referred to as 'threadworm' or 'seatworm', is a common intestinal pathogenic parasite that is unique due to its pervasive presence across all socioeconomic population levels.<sup>4,5</sup> The onset of symptoms associated with pinworm infection is known as 'enterobiasis'.<sup>4</sup>

The significant prevalence of pinworm infection is a consequence of it being the most easily transmissible parasite, usually via faeco-oral or transdermal transference and subsequent autoinfection.<sup>5</sup> The simple pinworm lifecycle involves three predominant stages, eggs, larvae and adults, occurring in the gastrointestinal lumen. Following exposure to infective eggs, the larvae pass through the stomach, hatch in the small intestine (a process known as 'oviposition') and then move down to the large intestine where they are highly concentrated.<sup>4,5</sup> The primary location within the large intestine and the process of oviposition occurring when the host is sleeping cause the onset of the characteristic symptoms of 'enterobiasis'.<sup>4,5</sup> Characteristic clinical symptoms include nocturnal perianal itching, irritability, sleeplessness, enuresis, extraintestinal granuloma and impaired daytime cognition. Other symptoms include transient lactose intolerance, nutritional deficiencies, vulvovaginitis and lower urinary tract infection.<sup>4,5</sup>

Figure 1: Life Cycle of Pinworm



### Vermifuge Herbs

#### Black Walnut

*Juglans nigra* (Black walnut) has a long history of use in Western Herbal medicine as a vermifuge and anthelmintic for the expulsion of intestinal worms. It is believed that the naphthoquinone compound juglone in the green hull is responsible for this action.<sup>4,5</sup>

#### Pomegranate

*Punica granatum* (Pomegranate) consists of the hull/peel, seeds and arils. Around 50% of the weight of the whole fruit is made up of the peel which consists of the rind, the membrane and the albedo/pith.<sup>9,10,11</sup> The rind and albedo are also sometimes referred to as the "pericarp".<sup>10</sup> The arils (aka sarcotesta) are the edible, sweet, red juice-filled burstlets that surround the seeds.<sup>10</sup> The juice is produced from the arils or from the whole fruit.<sup>8</sup>

Pomegranate fruit contains around 124 different phytochemicals, and approximately 48 of these are phenolic compounds.<sup>11</sup> As a result, Pomegranates are well known for their antioxidant capacity and this function has been well researched over recent years. The antioxidant activity of Pomegranates has been shown to be superior to red wine and green tea by around three times.<sup>7</sup>

The antioxidant components found in the pomegranate can essentially be broken down into two main groups present in the plant – tannins and flavonoids. The tannins can be further classified into ellagitannins which include ellagic acid, gallic acid, punicalagin and punicalin. The punicalagins are unique to Pomegranate. The flavonoids consist of anthocyanidins, flavan 3-ols (which can be further classified as catechins and epicatechins) and flavanols.<sup>6,11,13</sup>

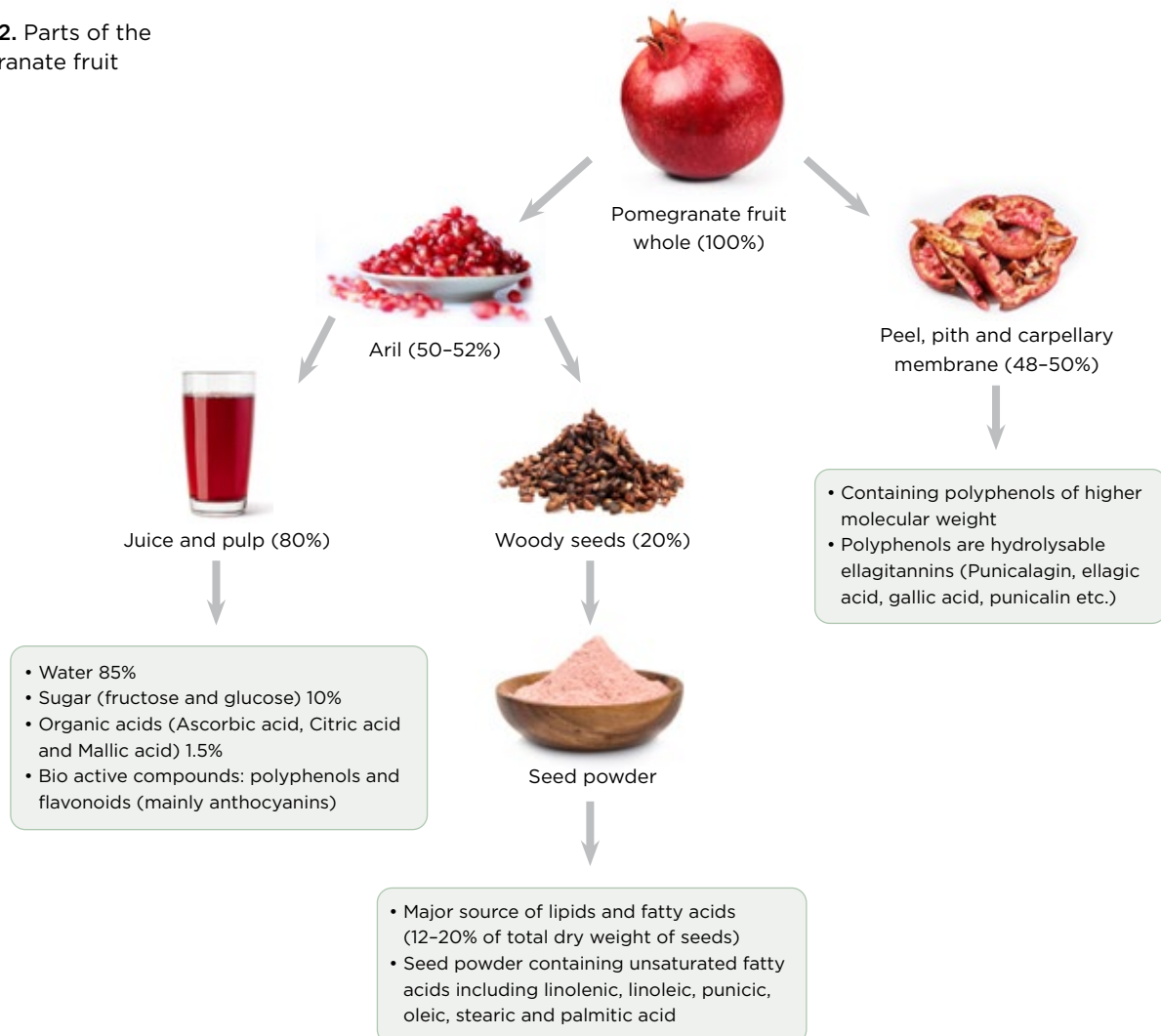
The antioxidant activity exerted by the polyphenol compounds drives most of Pomegranate's therapeutic applications.<sup>11</sup> The polyphenols in Pomegranate have high reducing ability (i.e., high electron transfer capacity and therefore high antioxidant potential), and high metal chelating and singlet oxygen inhibition capacity.<sup>12</sup>

### Digestive system

Pomegranate shows distinct and unique activity in the gastrointestinal system that supports the health and function of the GI tract, including the oral cavity. Some of the main areas of research focus on the ability of the polyphenols to affect the amount and composition of the microbiota, the ability to improve the regulation of epithelial tight junctions and therefore barrier function, and to provide a level of antimicrobial defence against pathogenic organisms. These actions all come about by the ability of the phenolic components found in Pomegranate to influence microbial metabolism, resulting in the production of compounds known as urolithins which provide gastroprotective effects.<sup>6,7,13,14,15,16</sup>

References supplied on request.

**Figure 2.** Parts of the Pomegranate fruit



### Designs for Health Quality Guarantee

Designs for Health medicines that are listed on the Australian Register of Therapeutic Goods will display an AUSTL number on the label. Listed medicines in Australia need to be manufactured according to legislated standards set out in Therapeutic Goods Order 101. TGO101 legislation sets out minimum quality standards for medicines supplied in Australia that display an AUSTL number. It mandates testing for:

- Impurities such as heavy metals (including lead, mercury, cadmium and arsenic), pesticides and residual solvents
- Dissolution (to ensure the capsule will dissolve once taken)
- Uniformity (to ensure that every capsule is the same)

Final assay testing is also performed to ensure that what we have on the label is in each capsule, and microbiological testing is performed to ensure that no microbial contamination has occurred during the encapsulation and packing process.