

## The Numerous Healing Properties of Slippery Elm

### Traditional Uses

*Ulmus rubra* (*U. fulva*) is a graceful arching tree indigenous to the United States that can live for 200 years.<sup>1</sup> Slippery Elm inner bark is demulcent (soothing to all mucous membranes), nutrient, antitussive and emollient. It is used in traditional medicine for inflammation and ulceration of the gastrointestinal tract, diarrhoea, convalescence, cough, sore throat and topically for abscesses, boils, skin inflammations, minor wounds and burns.<sup>2-5</sup> The Native Americans also regarded Slippery Elm as a laxative.<sup>6</sup> An Eclectic physician Dr Beach reported the numerous uses by Native Americans and declared that "in point of utility, it is of far more value than its weight in gold".<sup>6</sup> Slippery Elm is also a component of Essiac, a herbal formula popularised by a Canadian nurse, Rene Caisse in the early 1920s and used ever since to assist cancer patients.<sup>7</sup>

### Key Constituents

Slippery Elm bark contains polysaccharides. The main water-soluble polysaccharide is a linear chain of alternating D-galacturonic acid and L-rhamnose residues joined by alpha linkages with side branches of galactose or 3-O-methyl-galactose. Slippery Elm bark also contains starch and a small amount of tannin.<sup>3,8</sup> An analysis of Slippery Elm bark (see Table 1) found higher levels of cellulose and lignin and lower levels of water-soluble fraction (mucilages, gums, pectic substances) compared to psyllium seed. Slippery Elm was very high in cell-wall associated minerals (which although probably not bioavailable may still have an effect in the bowel).<sup>9</sup> It can be seen from Table 1 that Slippery Elm contains a unique combination of water-soluble and water-insoluble fibre, making it an ideal herb for maintaining gastrointestinal health.

The term 'mucilage' is used to refer to compounds like gums that form gelatinous solutions when mixed with water. Mucilage is therefore considered a water-soluble fibre. Slippery Elm bark swells to many times its original volume (50–140 for good quality inner bark) when mixed with water as evidence of its high mucilage content.

	Slippery Elm Bark	Psyllium Husks
total dietary fibre	60	66
cellulose	30	6
insoluble hemicelluloses	5	9
lignin §	9	0.9
mucilages, gums, pectic substances †	16	60
total ash ‡	9	2

**Table 1. Fibre analysis.**<sup>9</sup>

Note: all substances expressed as g/100 g

§ KMnO<sub>4</sub> method

† Equivalent to water-soluble fraction

‡ An indication of cell-wall associated minerals

### Properties of Mucilages

#### Demulcent & Emollient

Mucilages have been utilised for demulcent activity particularly in inflammatory conditions of the gastrointestinal tract. They may provide a direct soothing effect and provide a protective barrier against gastric acid on the digestive mucosa. Mucilages also have topical emollient properties, and a drawing and healing effect on wounds and lesions.<sup>10</sup>

#### Bulk Laxative Effect & Weight Loss

Mucilages have been traditionally used as bulk laxatives, and may also be used as an adjunct in weight loss by creating a feeling of fullness.<sup>10</sup>

In addition to increasing stool weight (by providing unfermented or incompletely fermented fibre and the moisture it holds) psyllium seed promoted laxation in humans by providing gelatinous material that acts as a lubricating emollient.<sup>11</sup> It is highly likely that Slippery Elm also demonstrates this faecal lubricating property. Also the insoluble fibre in Slippery Elm will provide a bulking effect.

#### Prebiotic Effect: Bowel Flora Protocol

Criteria that allow the classification of a food ingredient as a prebiotic, include the following:<sup>12</sup>

- it must be neither hydrolysed, nor absorbed in the upper part of the gastrointestinal tract;
- it must be selectively fermented by one or a limited number of potentially beneficial bacteria in the colon;

- it must alter the composition of the colonic microbiota towards a healthier composition;
- it must preferably induce effects that are beneficial to the host health.

The principal substrates for gut bacterial growth are dietary carbohydrates that have escaped digestion in the upper gastrointestinal tract.<sup>12</sup> Given that Slippery Elm contains good levels of soluble and insoluble fibre, and is only partially digested, it will have a valuable role as a prebiotic as part of a bowel flora protocol to manage dybiosis.

## Nutritive & Other Effects

The breakdown of soluble fibre by bowel flora into short chain fatty acids (SCFAs) may explain the nutritive property so valuable during convalescence. Mucilage soothes a disturbed digestive tract and SCFAs formed in the colon would provide a source of readily absorbed and assimilated nourishment.<sup>10</sup>

Mucilages are also used by phytotherapists to effect reflex demulgency, especially to ease irritable and ticklish dry coughs. Soluble fibre helps to retain glucose in the gut and to reduce insulin levels after eating, and may also assist in lowering cholesterol.<sup>10</sup>

## Actions

Demulcent, emollient, nutrient, bulk laxative, prebiotic.

## Indications

- Inflammation of the gastrointestinal tract especially laryngitis, oesophagitis, gastritis, colitis.
- Ulceration of the upper gastrointestinal tract.
- Constipation and conditions where a soft stool is required eg haemorrhoids.
- Irritable bowel syndrome.
- As an aid to encourage the growth of beneficial bowel flora.
- May assist in weight loss by providing a feeling of fullness.

## Cautions and Contraindications

Contraindicated in intestinal obstruction. Mucilages taken in capsule or tablet form should be taken with plenty of water to reduce the risk of oesophageal obstruction.

## REFERENCES

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