Product Rationale:
For those who suffer from sinusitis and other sinus related issues.

Ingredient Information:
Andrographis:
• Pharmacological studies of Andrographis suggest anti-inflammatory, antipyretic, antiviral, and immune stimulating properties\(^1\).
• A meta-analysis of seven double-blind studies was conducted on the efficacy of Andrographis. The data suggests that A. paniculata is superior to placebo in alleviating the symptoms of upper respiratory tract infections\(^1\).
• In a randomized, placebo-controlled double-blind study of 208 adults with URTI it was found that A. paniculata [60mg andrographolide/day] improved nasal secretion and soreness of throat compared with placebo\(^1\).

N-Acetyl L-Cysteine:
• NAC is used to treat acetaminophen overdose and is used in upper respiratory tract infections and bronchitis\(^9\).
• NAC breaks the disulfide bonds of mucus glycoprotein. This results in a decrease of viscoelasticity of nasal mucus\(^2\).
• Reconstituted human nasal mucus (RHNMM) from 74 patients with chronic sinusitis was used to determine the effects of 4 mucokinetic agents, including acetylcysteine. 5% RHNMM dissolved in phosphate-buffered solution was the optimal concentration of RHNMM as it was similar to freshly collected nasal mucus. Acetylcysteine decreased both dynamic viscosity and elastic modulus, making it an effective mucolytic\(^10\).

Bromelain:
• The term bromelain refers to all the enzymes derived from pineapple fruit, leaves, and stems. Bromelain has historically been used as a digestive aid, cleansing agent, wound healing, and as an anti-inflammatory\(^8\).
• Bromelain was evaluated in children with acute sinusitis. Patients in the bromelain group showed a statistically faster recovery from symptoms associated with sinusitis compared to the other treatment groups\(^3\).

Berberine Sulfate:
• Berberine sulfate is a salt form similar to the berberine alkaloids found in Goldenseal, a plant known to have natural antibiotic properties.
• Berberine can metabolically inhibit certain organisms, inhibit bacterial enterotoxin formation, inhibit intestinal fluid accumulation and ion secretion, and reduce inflammation\(^4\).

Thyme:
• Thyme has traditionally been used to help with inflamed sinuses, whooping cough, and help loosen phlegm\(^11\).
• Thymol is the active ingredient in thyme, and is responsible for the antiseptic/antibacterial properties\(^11\).
• The German Commission E has approved Thyme for the treatment of bronchitis, whooping cough, and upper respiratory inflammation\(^12\).
Turmeric Root:
• Curcumin has anti-inflammatory, antioxidant, and chemopreventive activities.
• Preliminary data suggests that curcumin inhibits cell proliferation and cytokine production by inhibiting target genes involved with immunity.

Eleuthero Root:
• Siberian Ginseng has traditionally been used to help with fatigue, increase concentration, and prevent infections.
• 10 mg of Siberian Ginseng along with 8.5 mg standardized extract of Andrographis paniculata, (Kan Jang) were found to be effective against acute upper respiratory tract infections. Significantly improving symptoms such as throat symptoms, headache, nasal symptoms, and general malaise.

Licorice Root:
• Licorice root has historically been used to soothe respiratory inflammation.
• Glycyrrhizin has shown some antimicrobial activity against different bacteria and viruses, including Epstein-Barr and HIV. It appears to boost the immune system’s T-cell count.
• Glycyrrhizin exerts its anti-inflammatory action by inhibiting the production of reactive oxygen species by neutrophils.

Dose
As a dietary supplement, three capsules per day.

Contraindications, Adverse or Other reactions:
Sinatrol should be used with caution in those individuals having high blood pressure and/or who are on blood thinning medication.

References:
9. NAC. http://www.pdrhealth.com