

- **Defense:** Protects against herbivores, insects, and microbes.
- **Antioxidant Activity:** Neutralizes reactive oxygen species (ROS). Help to neutralize free radicals and reduce oxidative stress.
- **UV Protection:** Absorbs UV radiation, preventing DNA damage.
- **Antimicrobial:** Effective against bacteria, fungi, and viruses. Can inhibit the growth of bacteria, fungi, and viruses by disrupting microbial cell walls or inactivating microbial enzymes.
- **Astringent:** Treats diarrhea, dysentery, and wounds.
- **Cardioprotective:** Reduces LDL oxidation, preventing heart disease. Helps to lower blood pressure, reduce cholesterol levels, and improve blood circulation. It can help to reduce the risk of cardiovascular diseases like heart attack and stroke. Prevent atherosclerosis, fibrillation. Improve endothelial function.
- **Anti-inflammatory:** Helps in arthritis, gastritis, and skin disorders. Helps to reduce inflammation by modulating inflammatory pathways and reducing the release of pro-inflammatory cytokines.
- **Anticancer:** Through mechanisms such as inducing apoptosis and inhibiting the growth and proliferation of cancer cells.
- **Anti-diabetic:** Improves insulin sensitivity, regulates glucose. Help to lower blood sugar levels, making it beneficial for those who are with diabetes or insulin resistance.
- **Digestive Health:** Mandarin oranges promote digestion and can help prevent constipation due to their fiber content.
- **Respiratory Activity:** Respiratory conditions like cough, bronchitis, and asthma.
- **Neuroprotective Benefits:** Protect against Alzheimer's and Parkinson's by enhancing cognitive function.
- **Hepatoprotective Activity:** Helps to prevent liver damage by protecting hepatocytes from toxins, oxidative stress, and inflammation. It helps maintain liver function and promotes regeneration. Used as remedy of jaundice and liver damage.
- **Gastroprotective Effects:** Prevent gastric ulcers and inhibit *H. pylori* bacteria by reducing acid secretion and enhancing mucosal defense.