

## Onions, Garlic & Birds

**Learn about the characteristics of these two foods that make them potentially dangerous for birds**

*By Margaret A. Wissman, DVM, DABVP, Avian Practice*

Garlic and onions do not contain any nutrients vital to pet bird health. Onions, garlic and chives are all in the Lily family, Liliaceae. Onions are of the genus *Allium*, and the true onion is *Allium cepa*, *Allium cernuum*, is the wild onion, the shallot is *Allium ascalonicum*, and the green onion (or leek) is *Allium ampeloprasum*. Garlic is also in the Lily family, Liliaceae, and is related to onions and has similar chemical characteristics.

Onions, whether cooked, raw or dehydrated, contain sulfur compounds that, when chewed, are hydrolyzed to thiosulfates. Thiosulfates decompose to a number of disulfides, including dipropenyl disulfide (or n-propyl disulfide), which appears to be the most toxic disulfide. These disulfides are oxidizing agents that can cause hemolysis or a rupture of red blood cells.

The toxicity of onions is based on their disulfide concentration, which is increased when they are grown in soil high in sulfur. Sulfur is a widely distributed element found in abundance in the soil in both free and combined states.

In addition to the compounds found in these plants that cause red blood cells to rupture, resulting in anemia, they can also cause irritation to the mouth, esophagus and crop, and can cause ulcers, although this damage is probably more severe in mammals.

The sulfur compounds found in these plants cause red blood cells to rupture in animals, and dogs, cats and cattle seem particularly sensitive to this problem. Because birds have nucleated red blood cells, and mammals do not, it is thought that this somewhat protects them from the affects of Heinz body hemolysis. Heinz bodies are pieces of oxidized hemoglobin that are found on still-intact red blood cells (RBCs). If enough RBCs are ruptured from the ingestion of these compounds found in onions and garlic, this will result in anemia. Red blood cells are responsible for carrying oxygen to the tissues and for removing carbon dioxide, as well. As the number of RBCs decreases, the animal becomes weaker, and the gums and tissues also become pale.

The good news is that the red cells can be replaced by the body as long as the hemolysis stops. In dogs, it takes several days for the red cell count to reach the lowest point after a single large exposure. In chronic exposure at low doses, the anemic effect is lessened because RBCs, also called erythrocytes, are being regenerated as they are being destroyed.

Allicin, which gives garlic its odor, is also a strong oxidant. In rare cases, this chemical can be dangerous and can cause Heinz body hemolytic anemia, as well.

Although I have not seen any scientific studies performed on any avian species, there is the chance that disulfides could also cause this Heinz body hemolytic anemia in birds. For that reason, I feel that is unnecessary and potentially dangerous to feed birds onions, leeks, garlic or chives, as they don't contain any nutrients that are vital for the health of our pet birds that cannot be found in other food items. Why take the