

## The Effect Of Tannin On The *In Vitro* Solubilization Of Iron

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The absorption of dietary iron can be greatly influenced by other constituents in the diet, such as ascorbic acid (vitamin C) and tannins. Ascorbic acid increases the bioavailability of iron by converting  $\text{Fe}^{3+}$  to  $\text{Fe}^{2+}$ , while tannins can reduce the bioavailability of iron by binding to it. Captive herbivorous animals are often impacted by either the addition or absence of ascorbic acid and tannins in the diet. Too much ascorbate and too little tannin has been associated to mortality in captive lemurs due to hemosiderosis (excess iron deposition in various tissues which accumulate the storage form of iron, hemosiderin). Tannins are generally not included in a captive animal's diet because they 1) act as digestibility reducers by binding to dietary protein, and 2) require the feeding of browse (fresh leaf material), which is hard to obtain on a regular basis. Conversely, ascorbic acid is usually high in captive animal diets since fresh fruit (e.g., oranges) is often fed. Thus, these two constituents (tannins and ascorbic acid) are potentially much more difficult to assess in the overall dietary equation of an animal. I am exploring the effects of tannin on the *in vitro* solubility of iron. This can have important implications for the feeding of captive herbivorous animals.

**Key words: hemosiderosis; ascorbic acid; herbivores**