

Determination of Vitamin C Concentration in Different Ornamental and Wild Plants

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Abstract

Short Communication

Vitamin C is an important vitamin present in several fruits and plants. The goal of the present article is to determine and quantify the presence of vitamin C in different ornamental and wild plants. With lugol's iodine technique *Pistacia lentiscus*, *Pyracantha coccinea* and *Solanum dulcamara* have demonstrated to have the highest studied concentrations in our experiments. This experiment could help to elucidate sources of vitamin C in different plants.

Keywords: Vitamin C, wild plants, *Solanum dulcamara*, *Trasdecantia purpurea*.

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BODY OF THE ARTICLE

Vitamin C or L-ascorbic acid is a water-soluble vitamin that is related to the synthesis of collagen and has antioxidant, anti-catarhal, anti-tumor and pro-immunological properties. Its concentration is widely studied in the fruits of habitual consumption. Our objective is to determine the concentration of vitamin C in different leaves and fruits of ornamental and wild plants in order to identify sources of this compound.

For this study, *Trasdecantia purpurea*, *Aloe vera* and *Kalanchoe daigremontiana* leaves were used; and fruits of *Lantana camara*, *Pistacia lentiscus*

(mastic), *Asparagus officinalis* (asparagus), *Pyracantha coccinea*, *Cornus sanguinea* (dogwood), *Solanum dulcamara* and *Dracaena draco* (canary dragon tree) (Figure 1). Their respective water-soluble extracts were obtained and analyzed using the lugol's iodine technique in order to determine the concentrations of vitamin C per 100 g of leaves or fruits (Alvea H, 1969).

RESULTS AND DISCUSSION

Table 1 and Figure 1 summarize the results obtained from the determination of vitamin C in the different species studied.

Table 1: Summary of the vitamin C concentration in mg per 100g of sample analyzed and the standard deviation

Vegetable	Ascorbic acid concentration (mg/100g)	SD
Orange (fruit)	53	0
Trasdecantia purpurea (leaves)	0	9,15
Aloe vera (leaves)	27,5	18,25
Kalanchoe draigemontiana (leaves)	18	9,12
Lantana camara (fruit)	86,39	17,52
Pistacia lentiscus (fruit)	545	18,25
Asparagus officinalis (fruit)	20	9,15
Pyracantha coccinea (fruit)	158,4	14,4
Comus sanguinea (fruit)	102,85	10,28
Solanum dulcamara (fruit)	360	18
Dracaena draco (fruit)	45	9

Vitamin C determination in different ornamental and silvester plants

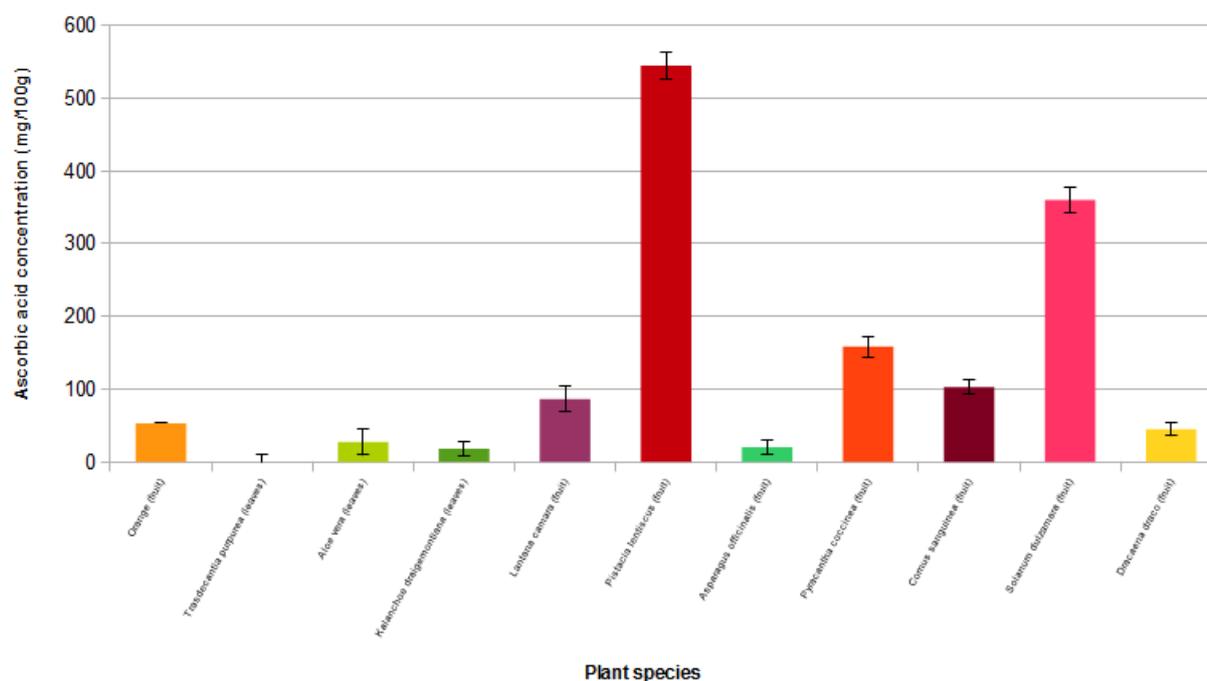


Figure 1: Results of the concentration of vitamin C in mg per 100 g of sample analyzed

The concentration of vitamin C in an orange (53mg / 100g) has been established as a reference for comparison with the rest of the concentrations obtained. Most of the species analyzed under this term have not been previously studied given the information present in the bibliography. It can be seen that in the leaves analyzed the concentration of vitamin C is lower than in the fruits studied. *Trasdecantia purpurea*, a plant that is edible, does not present detectable amounts of vitamin C, while the *Aloe Vera* leaf contains approximately half the vitamin C of an orange. With something less than *Aloe Vera*, there is *Kalanchoe daigremontiana* (Zawirska-Wojtasiak *R et al.*, 2019). There is a study in which the concentration of ascorbic acid in this species is presented, being similar to that obtained in our study. The latter is highly cardiotoxic. Among the fruits, two stand out with high concentrations of vitamin C, the mastic and the dulcamara, the first with 10 times more vitamin C than the orange and the second with almost 7 times more than the orange. Both fruits are not edible for humans, but they are for birds. With between 2 and 3 times more vitamin C than orange, there are dogwood, *Pyracantha* and *Lantana*, all of which are toxic for humans but not for birds. With a concentration of vitamin C similar to orange, you will find the fruits of the

Canary Island dragon tree, which are edible even with a pleasant aroma. They could be an interesting food supplement. Finally, asparagus fruits have some vitamin C although they are toxic to humans.

CONCLUSIONS

In our experiments, *Pistaccia lentiscus*, *Pyracantha coccinea* and *Solanum dulcamara* have demonstrated to have the highest studied concentrations of vitamin C. Therefore, they could be sources of vitamin C for different goals.

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