CHEMICAL COMPOSITION IN Phaseolus filiformis, a facultative perennial form the Sonoran Desert.

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The study of the legumes and in particular the genus Phaseolus in Mexico is of special interest because of its major role in the Mexican diet. Because of the large extent of arid and semiarid agricultural lands in Mexico, a desirable characteristic in Phaseolus is its potential adaptation to grow under water stress conditions. This is the major objective in our research of chemical and physiological characterization of wild Phaseolus species growing naturally under high temperature and low water availability environments.
Phaseolus filiformis also known as "frijol del desierto", grows naturally within the most extreme regions of the Sonoran Desert. It can be seen growing in habitats with temperature extremes of 46 °C and 80 mm of precipitation during a year. The species has been also reported to be highly resistant to golden mosaic virus disease (Buhrow 1983), and although some attempts to produce intraspecific hybrids with Ph. vulgaris and Ph. angustissimus have not been all that successful (Katanga and Baudoin 1987), some hopes remain (Nabhan and Felger 1985). Mature Ph. filiformis beans and pods have been reported to be eaten by people inhabiting the Pinacate desert region in the northwest of the state of Sonora in Mexico.
In our studies, chemical characterizations were performed in Ph. filiformis collected from the central desert coastal region in Sonora, near Kino Bay, and commercial Ph. vulgaris (pinto) bean seeds.
Comparative results in Table.1 show, Ph. filiformis to be a better source for protein (25.6%) compared to pinto beans (22.62%). Fat and ash content were similar in both species. Legumes in general are considered a good source for minerals, particularly calcium, magnesium, iron and zinc. Both species show similar values.
Compared to Ph. vulgaris, antinutritional factors such as tannins are lower in Ph. filiformis, however tripsin inhibitory content is almost doubled for the same species. Further evaluations are needed to asses denaturation liability of tripsin inhibitory factors to normal cooking conditions.
Our results show that Ph. filiformis has some potential as a food source because high protein and mineral content. Chemical evaluations on other Phaseolus species are currently in progress.

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TABLE. 1. Proximate composition, mineral and antinutritional contents of Phaseolus filiformis and Phaseolus vulgaris seeds.

COMPONENT	Ph. filiformis	Ph. vulgaris
PROXIMATE [a]		
MOISTURE	7.39	7.48
PROTEIN	25.60	22.62
FAT	1.49	1.43
ASH	3.90	4.19
FIBER	5.76	5.60
SUGAR	55.86	58.68
MINERALS [b]		
Ca	1730	1725
Mg	1733	1668
K	15200	17891
Fe	74	57
Zn	36	36
ANTINUTRIENTS		
TANNINS [c]	9.5	13.0
TIU / mg [d]	20.1	11.7

[a] Values, expressed as percent on a dry matter basis.
[b] Parts per million, ppm.
[c] mg catequin / g of dry sample.
[d] tripsin inhibitory units / mg dry sample.