PHASEOLUS IN ARCHAEOLOGY: AMS RADIOCARBON DATES[1]

Lawrence Kaplan (Department of Biology, University of Massachusetts, Boston, MA 02125. USA. lawrence.kaplan@umb.edu) and Thomas F. Lynch (Brazos Valley Museum of Natural History, 3232 Briarcrest Dr., Bryan, TX 77802 USA).

Previously published radiocarbon dates on charcoal associated with *Phaseolus* remains in archaeological sites, in Mexico and Peru have indicated the presence of domesticated beans as early as 10,000 years before present time (B.P.). However, direct dates on the beans and pods themselves by accelerator mass spectrometry (AMS) do not provide evidence for the cultivation in Mexico of common beans, *P. vulgaris*, and teparies, *P. acutifolius*, before about 2500 B.P. in the Tehuacán Valley, and of common beans about 1300 years ago in Tamaulipas and 2100 years ago in the Valley of Oaxaca. AMS dates support the presence in the Peruvian Andes of domesticated common beans by about 4400 B.P. and lima beans by about 3500 B. P. and lima beans by about 5600 B.P. in the coastal valleys of Peru. The late appearance of common and lima beans in the Central Highlands of Mesoamerica suggests that evidence for earlier domestication might be obtained from prehistoric agricultural sites in western Mexico and in Central America which are located within the range of the wild populations of these species. Additionally, when reliable methods are available biochemical studies of subsamples of the dated specimens should be carried out in order to extend the molecular evidence for the independent domestication of North and South American common beans.

RADIOCARBON DATES (AMS) FOR THE EARLY PRESENCE OF *PHASEOLUS*

Phaseolinae, pod, wild	Central México, Valley of Oaxaca	7583±62
P. vulgaris, seed	Central México, Valley of Oaxaca	2098±81
P. vulgaris, pod	Central México, Tehuacán Valley	2285±60
P. acutifolius, seed	Central México, Tehuacán Valley	2300±50
P. vulgaris, bush bean pod	Northeastern México,Tamaulipas,	1285±55
P. lunatus, seed,	North Central México, Durango	571±71
P. coccineus, seed,	North Central México, Durango	1122±60
P. vulgaris, seed	Peru, Central Andes	4337±55
P. lunatus, seed	Peru, Central Andes	3495±50
P. vulgaris, seed, (nuña type)	Peru, Northern Andes	2410±50
P. lunatus, seed	Peru, Northern Andes	2400±45
P. lunatus, pod	Peru, South Coast	5616±57

1.Full text of article *in ECONOMIC BOTANY 53(3) 261-272. 1999*