

INTRODUCTION BOTTLENECK AND THE CONTRIBUTE OF MESOAMERICAN AND ANDEAN GENE POOLS TO COMMON BEAN (*PHASEOLUS VULGARIS* L.) DIVERSITY IN EUROPE

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Phaseolus vulgaris, nuSSR, genetic diversity, inter-gene pool hybrids

Common bean (*Phaseolus vulgaris* L., $2n = 2x = 22$) is the most important edible food legume for direct human consumption in Europe and in the world as it represents a valuable source of proteins, vitamins, fibres, and minerals. Genetic and archaeological studies have shown that domestication of *P. vulgaris* was originated and domesticated in the New World and has two major gene pools, the Andean and the Mesoamerican, based on their centers of origin in South and Central America, respectively. After the first voyages of Columbus (1492) common bean was brought to Europe but historical and linguistic sources provide little evidence of the introduction and expansion of common bean in Europe. In common bean a large number of nuclear microsatellite markers (nuSSRs) have been already developed and mapped that show relatively high levels of polymorphism, thus providing an attractive choice for describing population structure. However, to the best of our knowledge, population studies of the European common bean, using nuSSRs, so far have been performed with only a small number of landraces or a small number of samples from a few geographic regions. In the present study, we used thirteen highly polymorphic nuSSRs to assess the genetic structure and level of diversity of a large collection of European landraces (256 individuals), in comparison with a representative American sample (89 individuals). Moreover, to obtain a detailed picture and to elucidate the effects of bottleneck of introduction and selection for adaptation during the expansion of common bean over the whole Europe, we also complemented the nuSSRs analysis by information provided by a Bayesian analysis implemented in STRUCTURE. Here, we present and discuss the role that inter-gene pool hybridization have had in shaping the genetic structure of the European bean landraces. The implication for evolution and the advantages for common bean breeding are also discussed.