Diversity of Capsicum in Brazil and its genetic and agronomic potential

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Several species of Capsicum are found in Brazil and domesticated as well as semi-domesticated species such as C. annuum, C. baccatum, C. chinense, C. frutescens, C. baccatum var. praetermissum are important horticultural crops in the country, consumed either as sweet or as hot peppers, in many ways. The Embrapa-based Capsicum research program has had activities that go from expeditions to collect germplasm in remote areas of the country to molecular markers, volatile determination and processing characteristics, bridging knowledge and technology gaps of relevance to both public and private sectors; its focus has been the development of disease-resistant lines, cultivars and hybrids of both hot as well as sweet peppers. The program is financed by federal funds (Embrapa and CNPq) as well as by contract research with the private sector. The Capsicum collection at Embrapa has over four thousand accessions, which have supported a major 30-year-old breeding program that today has over 30 thousand lines and populations. Germplasm collection has followed traditional processes as well as innovative schemes that mobilized individuals from technical schools. The collection has been characterized in part by both morphological as well as molecular means. Major contributions by the program and associated researchers include the establishment of the germplasm collection and of a satellite collection at IFG Campus Ceres with over 300 genotypes from central Brazil; the establishment of a Capsicum research group at CNPq; the discovery of new species (C. pereirae, C. friburgense and C. hunzikerianum); the organization of an internet-based network of over 500 Capsicum-related professionals from both private and public; the release of several disease resistant lines such as CNPH 148 and CNPH 703; the release of disease resistant cultivars such as BRS Sarakura (C.annuum), BRS Mari (C.baccatum), BRS Moema (C. chinense); and the support to young talents interested in Capsicum conservation, characterization and sustainable use.