Colombian fruits

Because of its location at the junction between two sub-continents and its particular topography, Colombia is a land of megadiversity. In particular, it is home to more Passiflora (passionfruit) species than any other country, and ranks second for Caricaceae (papaya family). Because of its recognised experience with both these plant groups, CIRAD was invited to take part in a study of biodiversity in the coffee-growing area which the Colombian environment minister has entrusted to the Coffee Producers' Federation research centre Cenicafé.

The research team is studying diversity in Passifloraceae and Caricaceae, many species of which show a high degree of specialisation, evidence of biodiversity in the coffee growing area. The goals are to identify those areas with the greatest diversity (hotspots), to compare their real and expected distribution patterns, to identify risk factors and high-risk areas for erosion of diversity, and to suggest management strategies. Identifying promising species may also help to diversify crops in the coffee growing zone and so improve agrobiodiversity.

During the first stage, having established the geographical coordinates of 3,160 plant collection accessions, the researchers were able to identify 153 Colombian Passifloraceae and 13 Caricaceae and study their distribution using a geographical information system. The diversity of Passiflora and Vasconcellea, the main genera of these families, varies widely with altitude, peaking at altitudes of about 1,500-2,000 metres and particularly diverse in the Central Cordillera. The main hotspots identified have been little explored by botanists and little account has been taken of them in deciding where to locate national parks. The considerable overlap between Passiflora and Vasconcellea hotspots has major implications for their conservation.

The researchers also established two in situ collections and gathered samples in the field, from which they studied these species' morphological, anatomical, cytogenetic, palynological and molecular diversity. The purpose here is to analyse the diversity of the two genera in greater detail and ultimately map it.