

# BRAZILIAN INITIATIVE FOR BEE DNA BARCODES

**Autores:** Elaine Franoso<sup>1\*</sup>, Rute Brito<sup>2</sup>, Solange Cristina Augusto<sup>3</sup>, Silvia Helena Sofia<sup>4</sup>, Patrícia Drumond<sup>5</sup>, Gislene Almeida Carvalho-Zilse<sup>6</sup>, Ana Maria Waldschmidt<sup>7</sup>, Tiago Mauricio Franco<sup>8</sup>, Marco Antonio Costa<sup>9</sup>, Maria Cristina Arias<sup>1</sup>.

**Instituição:** <sup>1\*</sup>Instituto de Biociências – USP; <sup>2</sup>Instituto de Genética e Bioquímica – UFU; <sup>3</sup>Instituto de Biologia – UFU; <sup>4</sup>Centro de Ciências Biológicas – UEL; <sup>5</sup>Centro de Pesquisa Agroflorestal do Acre – EMBRAPA; <sup>6</sup>Instituto Nacional de Pesquisas na Amazônia; <sup>7</sup>Universidade Estadual do Sudoeste da Bahia.

**Contato:** Rua do Matão, 277. CEP 05508090. São Paulo – SP.

**Email:** francoso@usp.br

The identification of species based on morphological characters sometimes is very limited. Besides that the number of taxonomists is decreasing. Recently a molecular tool, called DNA barcode, has been suggested for species identification, specially where taxonomic inconsistencies or lack of morphological data are presented. It does not mean that traditional taxonomy has become less important. Rather, DNA barcoding can sign for species complex that deserve more taxonomic efforts. The standard DNA barcode is based on mitochondrial *c oxidase 1* gene (CO1), a fragment of 648 base-pair long. Such region has been employed for most of the animal groups, such as birds, butterflies, fish and flies. About two years ago, CNPq, a Brazilian research founding agency, announced a National Initiative to build a DNA barcode data bank for Brazilian fauna and flora. Bees were included as a key group due their high economic importance. Researchers working with bees were invited to participate. During this first year, 90 specimens, encompassing 70 species from the tribes Apini, Bombini, Centridini, Euglossini, Meliponini, Tetrapediini and Xylocopini were analyzed. The middle leg of each individual was used for DNA extraction. To amplify the COI region for most of the species, we designed and tested new primers. Several PCR conditions were tested. The new primers amplified successfully the COI for all species, indicating that these primers can be used as universal primers for bee Barcode. The annealing temperature at 40oC was optimal for the bees tested. The sequences were used to generate a phylogenetic tree by Neighbor Joining analysis using K2P distance. Among the samples, some appeared to be polyphyletic, like *Scaura latitarsis*, *Melipona quadrifasciata*, *Bombus* and *Frieseomelitta*. However our data set are very preliminary to suggest a taxonomic revision for such groups.

**Apoio:** CNPq, NAP BioComp – USP.

**Área:** Sistemática e biogeografia de abelhas.

**Palavra chave:** DNA Barcode - Brazilian bees - molecular identification - *cytochrome c oxidase 1* gene - CO1.