Notas Científicas

Preliminary characterization of *Psidium* germplasm in different Brazilian ecogeographic regions

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Abstract – The objective of this work was to characterize 119 accessions of guava and 40 accessions of "araçá" sampled in 35 Brazilian ecoregions, according to the International Union for the Protection of New Varieties of Plants (UPOV) descriptors. The majority of "araçá" accessions presented wide spacing of leaf veins, while guava accessions presented medium to close spacing. Most fruits of "araçá" accessions were classified as small, contrasting with medium to large fruits of guava accessions. Most of "araçá" accessions (91%) presented white flesh fruit color, while 58% of guava accessions presented pale pink, pink and dark pink colors. Fruit differences among wild and cultivated *Psidium* species indicate fruit as the most altered trait under artificial selection.

Index terms: Psidium guajava, araçá, guava.

Caracterização preliminar de germoplasma de *Psidium* em diferentes ecorregiões brasileiras

Resumo – O objetivo deste trabalho foi caracterizar 119 acessos de goiabeira e 40 acessos de araçazeiro identificados em 35 ecorregiões brasileiras, de acordo com descritores da International Union for the Protection of New Varieties of Plants (UPOV). A maioria dos acessos de araçazeiro apresentou grandes espaços entre as nervuras da folha, enquanto os de goiabeira apresentaram espaços pequenos. Os frutos de araçazeiro foram classificados como pequenos, enquanto os de goiabeira apresentaram tamanho de médio a grande. A maioria dos acessos de araçazeiro (91%) apresentou cor branca para a polpa do fruto, enquanto 58% dos de goiabeira apresentaram cor de rosa-claro a rosa-escuro. As diferenças nos frutos entre *Psidium* selvagens e domesticados indicam que os frutos foram os mais alterados pela seleção artificial.

Termos para indexação: Psidium guajava, araçá, goiaba.

The Myrtaceae family comprises approximately 130 genera and 3,000 species of trees and shrubs, mostly evergreen and distributed mainly in the tropics and subtropics (Watson & Dallwitz, 2007). The genus *Psidium* (2n = 2x = 22) includes about 150 species, which are all fruit-bearing trees or shrubs (Jaiswal & Jaiswal, 2005). *P. guajava* L. (guava) is native of Northern South America and widely distributed in the tropical regions of America (Risterucci et al., 2005). "Araçá" is a general term used in Brazil to refer to wild

Psidium spp., among which *P. cattleyanum* Sab., *P. incanescens* Martius, *P. gradiflorum* Martius and *P. arboretum* Vell. are native of South America (Raseira & Raseira, 1996).

Characterization and agronomic evaluation for *P. guajava* were reported by Rodriguez et al. (2004). Raseira & Raseira (1996) reported an extensive work on "araçá", including genotype characterization.

The objective of this work was to characterize guava and "araçá" accessions, according to the International Union for the Protection of New Varieties of Plants (UPOV) descriptors for *Psidium guajava*.

Prospecting of wild-growing Psidium germplasm species was carried out in 35 ecogeographic zoning regions (EGZRs) of ten Brazilian states, five in Maranhão (MA), five in Sergipe (SE), four in Pernambuco (PE), two in Piauí (PI), two in Bahia (BA), one in Rio Grande do Sul (RS), five in Goiás (GO), six in Rondônia (RO), two in Amazônas (AM) and three in Roraima (RR). An EGZR was defined as a region that has the same type of vegetation, soil and altitude, since it was assumed that Psidium spp. adaptation might have been influenced by these factors. An ecogeographic zoning map was used to define the ecoregions within five states of Brazil Northeast. In addition vegetation maps were used to define ecoregions in states of South, Central East and North regions of Brazil. Species samplings were made in EGZRs inhabited by the least developed rural human population, in order to avoid the prospecting of recently introduced guava germplasm. For the same reasons, sampling was avoided, when possible, within urban areas. For each individual plant, in situ pictures were taken and geographic coordinates with a GPS and physical reference sites were also recorded.

Guava and "araçá" plants sampled in different ecoregions were characterized for one, 20, 17 and two descriptors of stem, leaves, fruits and seeds, respectively (Table 1), according to UPOV guidelines (International Union for the Protection of New Varieties of Plants, 1987). Simple percentages were estimated for the applied UPOV guava descriptors, while for others, such as leaf and fruit length, leaf and fruit width and spacing of leaf veins, prior measurements were taken before grouping into a specific descriptor class.

A hundred nineteen accessions of guava and 40 accessions of "araçá" from 35 different ecoregions were characterized, with the following distribution by Brazilian state: MA - 25 of guava and one of "araçá"; PI – three of guava and one of "araçá"; SE – 12 of guava and two of "araçá"; BA – ten of guava and seven of "araçá"; PE – nine of guava and four of "araçá"; RS – five of guava and five of "araçá"; RO – 15 of guava and five of "araçá"; GO – 17 of guava and seven of "araçá"; and AM – 16 of guava and four of "araçá".

The majority of "araçá" accessions (86%) presented wide spacing of leaf veins, while guava accessions presented medium (65%) and close (33%) spacing (Table 1). In the field, this descriptor was used to separate, in some cases, accessions of "araçá" from

Table 1. Germplasm characterization of 119 accessions ofguava (*Psidium guajava*) and 40 accessions of "araçá"(*Psidium spp.*), based on the UPOV descriptors, identified in35 different Brazilian ecoregions.

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$\begin{array}{ccccccc} \mbox{Curvature of midrib} & \mbox{Absent} & \mbox{78} & \mbox{26} \\ \mbox{Present} & \mbox{22} & \mbox{74} \\ \mbox{Degree of curvature of midrib} & \mbox{Weak} & \mbox{88} & \mbox{53} \\ \mbox{Medium} & \mbox{12} & \mbox{33} \\ \mbox{Medium} & \mbox{12} & \mbox{33} \\ \mbox{Prese nt} & \mbox{2} & \mbox{2} \\ \mbox{Green} & \mbox{65} & \mbox{48} \\ \mbox{Dark green} & \mbox{35} & \mbox{52} \\ \mbox{Spacing of secondary veins} & \mbox{Close} & \mbox{0} & \mbox{33} \\ \mbox{Medium} & \mbox{14} & \mbox{65} \\ \mbox{Wide} & \mbox{86} & \mbox{2} \\ \mbox{Relief of surface of upper side} & \mbox{Smooth} & \mbox{83} & \mbox{83} \\ \mbox{Medium} & \mbox{17} & \mbox{17} & \mbox{17} \\ \mbox{Pubescence on lower side} & \mbox{Absent} & \mbox{51} & \mbox{16} \\ \mbox{Sparse} & \mbox{22} & \mbox{64} \\ \mbox{Medium} & \mbox{8} & \mbox{19} \\ \mbox{Dense} & \mbox{19} & \mbox{18} \\ \mbox{Present} & \mbox{57} & \mbox{82} \\ \mbox{Degree of undulation of margin} & \mbox{Meak} & \mbox{76} & \mbox{54} \\ \mbox{Medium} & \mbox{24} & \mbox{44} \\ \mbox{Strong} & \mbox{0} & \mbox{2} \\ \mbox{Shape of base} & \mbox{Obtuse} & \mbox{76} & \mbox{54} \\ \mbox{Relief model} & \mbox{30} & \mbox{20} \\ \mbox{Shape of tip} & \mbox{Apiculate} & \mbox{3} & \mbox{62} \\ \mbox{Shape of tip} & \mbox{Apiculate} & \mbox{30} & \mbox{62} \\ \mbox{Fresent} & \mbox{30} & \mbox{62} \\ \mbox{Cordate} & \mbox{56} & \mbox{42} \\ \mbox{Shape of tip} & \mbox{Apiculate} & \mbox{30} & \mbox{62} \\ \mbox{Cordate} & \mbox{30} & \mbox{62} \\ Corda$	Twisting			
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$\begin{array}{ccccc} \mbox{Degree of curvature of midrib} & Weak & 88 & 53 \\ Medium & 12 & 33 \\ Strong & 0 & 14 \\ Variegation & Absent & 98 & 98 \\ Present & 2 & 2 \\ Green color & Green & 65 & 48 \\ Dark green & 35 & 52 \\ Spacing of secondary veins & Close & 0 & 33 \\ Medium & 14 & 65 \\ Wide & 86 & 2 \\ Relief of surface of upper side & Smooth & 83 & 83 \\ Medium & 17 & 17 \\ Pubescence on lower side & Absent & 51 & 16 \\ Sparse & 22 & 64 \\ Medium & 8 & 19 \\ Dense & 19 & 1 \\ Undulation of margin & Absent & 43 & 18 \\ Present & 57 & 82 \\ Degree of undulation of margin & Weak & 76 & 54 \\ Medium & 24 & 44 \\ Strong & 0 & 2 \\ Shape of base & Obtuse & 76 & 28 \\ Rounded & 19 & 30 \\ Cordate & 5 & 42 \\ Shape of tip & Apiculate & 3 & 0 \\ Acute & 3 & 6 \\ Obtuse & 62 & 70 \\ \end{array}$	Curvature of midrib			
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$\begin{array}{cccc} & \mbox{Present} & 2 & 2 \\ \mbox{Green color} & \mbox{Green} & \mbox{65} & \mbox{48} \\ \mbox{Dark green} & \mbox{35} & \mbox{52} \\ \mbox{Spacing of secondary veins} & \mbox{Close} & 0 & \mbox{33} \\ \mbox{Medium} & \mbox{14} & \mbox{65} & \mbox{26} \\ \mbox{Wide} & \mbox{86} & \mbox{2} \\ \mbox{Wide} & \mbox{86} & \mbox{2} \\ \mbox{Relief of surface of upper side} & \mbox{Smooth} & \mbox{83} & \mbox{83} & \mbox{83} \\ \mbox{Medium} & \mbox{17} & \mbox{17} & \mbox{17} \\ \mbox{Pubescence on lower side} & \mbox{Absent} & \mbox{51} & \mbox{16} & \mbox{51} & \mbox{16} & \mbox{52} & \mbox{64} & \mbox{Medium} & \mbox{8} & \mbox{19} & \mbox{19} & \mbox{11} \\ \mbox{Undulation of margin} & \mbox{Absent} & \mbox{43} & \mbox{18} & \mbox{Present} & \mbox{57} & \mbox{82} \\ \mbox{Degree of undulation of margin} & \mbox{Weak} & \mbox{76} & \mbox{54} & \mbox{Medium} & \mbox{24} & \mbox{44} & \mbox{51} & \mbox{51} & \mbox{62} & \mbox{54} & \mbox{Medium} & \mbox{24} & \mbox{44} & \mbox{54} & \mbox{55} & \mbox{62} & \mbox{62} & \mbox{76} & \mbox{54} & \mbox{76} & \mbox{76} & \mbox{54} & \mbox{76} & \mbox{76}$			0	
$\begin{array}{cccc} \mbox{Green color} & \mbox{Green color} & \mbox{Green 35} & \mbox{52} \\ \mbox{Dark green 35} & \mbox{52} \\ \mbox{Dark green 35} & \mbox{52} \\ \mbox{Close 0} & \mbox{33} \\ \mbox{Medium 14} & \mbox{65} \\ \mbox{Wide 86} & \mbox{2} \\ \mbox{Wide 86} & \mbox{83} & \mbox{83} \\ \mbox{Medium 17} & \mbox{17} & \mbox{17} \\ \mbox{Pubescence on lower side} & \mbox{Absent 51} & \mbox{16} \\ \mbox{Sparse 22} & \mbox{64} \\ \mbox{Medium 8} & \mbox{19} \\ \mbox{Dense 19} & \mbox{1} \\ \mbox{Undulation of margin} & \mbox{Absent 43} & \mbox{18} \\ \mbox{Present 57} & \mbox{82} \\ \mbox{Degree of undulation of margin} & \mbox{Weak 76} & \mbox{54} \\ \mbox{Medium 24} & \mbox{44} \\ \mbox{Strong 0} & \mbox{2} \\ \mbox{Shape of base} & \mbox{Obtuse 76} & \mbox{28} \\ \mbox{Rounded 19} & \mbox{30} \\ \mbox{Cordate 55} & \mbox{42} \\ \mbox{Shape of tip} & \mbox{Apiculate 33} & \mbox{0} \\ \mbox{Acute 33} & \mbox{62} \\ \mbox{Notuce 362} & \mbox{70} \\ \mbox{Acute 33} & \mbox{62} \\ \mbox{Notuce 362} & \mbox{70} \\ \mbox{70} & \mbo$	Variegation	Absent	98	98
$\begin{array}{c cccc} \text{Dark green} & 35 & 52 \\ \text{Close} & 0 & 33 \\ \text{Medium} & 14 & 65 \\ \text{Wide} & 86 & 2 \\ \text{Medium} & 17 & 17 \\ \text{Pubescence on lower side} & Absent & 51 & 16 \\ \text{Sparse} & 22 & 64 \\ \text{Medium} & 8 & 19 \\ \text{Dense} & 19 & 1 \\ \text{Undulation of margin} & Absent & 43 & 18 \\ \text{Present} & 57 & 82 \\ \text{Degree of undulation of margin} & Weak & 76 & 54 \\ \text{Medium} & 24 & 44 \\ \text{Strong} & 0 & 2 \\ \text{Shape of base} & Obtuse & 76 & 28 \\ \text{Rounded} & 19 & 30 \\ \text{Cordate} & 5 & 42 \\ \end{array}$		Prese nt	2	2
$\begin{array}{ccccc} {\rm Spacing of secondary veins} & {\rm Close} & 0 & 33 \\ {\rm Medium} & 14 & 65 \\ {\rm Wide} & 86 & 2 \\ {\rm Wide} & 86 & 2 \\ {\rm Wide} & 86 & 2 \\ {\rm Smooth} & 83 & 83 \\ {\rm Medium} & 17 & 17 \\ {\rm Pubescence on lower side} & {\rm Absent} & 51 & 16 \\ {\rm Sparse} & 22 & 64 \\ {\rm Medium} & 8 & 19 \\ {\rm Dense} & 19 & 1 \\ {\rm Undulation of margin} & {\rm Absent} & 43 & 18 \\ {\rm Present} & 57 & 82 \\ {\rm Degree of undulation of margin} & {\rm Weak} & 76 & 54 \\ {\rm Medium} & 24 & 44 \\ {\rm Strong} & 0 & 2 \\ {\rm Shape of base} & {\rm Obtuse} & 76 & 28 \\ {\rm Rounded} & 19 & 30 \\ {\rm Cordate} & 5 & 42 \\ {\rm Shape of tip} & {\rm Apiculate} & 3 & 0 \\ {\rm Acute} & 3 & 6 \\ {\rm Obtuse} & 62 & 70 \\ \end{array}$	Green color			
$\begin{array}{c cccc} \mbox{Medium} & 14 & 65 \\ \mbox{Wide} & 86 & 2 \\ \mbox{Wide} & 86 & 2 \\ \mbox{Wide} & 86 & 2 \\ \mbox{Medium} & 83 & 83 \\ \mbox{Medium} & 17 & 17 \\ \mbox{Pubescence on lower side} & Absent & 51 & 16 \\ \mbox{Sparse} & 22 & 64 \\ \mbox{Medium} & 8 & 19 \\ \mbox{Dense} & 19 & 1 \\ \mbox{Undulation of margin} & Absent & 43 & 18 \\ \mbox{Present} & 57 & 82 \\ \mbox{Degree of undulation of margin} & Weak & 76 & 54 \\ \mbox{Medium} & 24 & 44 \\ \mbox{Strong} & 0 & 2 \\ \mbox{Shape of base} & Obtuse & 76 & 28 \\ \mbox{Rounded} & 19 & 30 \\ \mbox{Cordate} & 5 & 42 \\ \mbox{Shape of tip} & Apiculate & 3 & 0 \\ \mbox{Acute} & 3 & 6 \\ \mbox{Obtuse} & 62 & 70 \\ \end{array}$		0		
$\begin{array}{c c c c c c c } & Wide & 86 & 2 \\ Relief of surface of upper side & Smooth & 83 & 83 \\ Medium & 17 & 17 \\ Pubescence on lower side & Absent & 51 & 16 \\ Sparse & 22 & 64 \\ Medium & 8 & 19 \\ Dense & 19 & 1 \\ Undulation of margin & Absent & 43 & 18 \\ Present & 57 & 82 \\ Degree of undulation of margin & Weak & 76 & 54 \\ Medium & 24 & 44 \\ Strong & 0 & 2 \\ Shape of base & Obtuse & 76 & 28 \\ Rounded & 19 & 30 \\ Cordate & 5 & 42 \\ Shape of tip & Apiculate & 3 & 0 \\ Acute & 3 & 6 \\ Obtuse & 62 & 70 \\ \end{array}$	Spacing of secondary veins			
$\begin{array}{cccc} \mbox{Relief of surface of upper side} & Smooth & 83 & 83 \\ Medium & 17 & 17 \\ \mbox{Pubescence on lower side} & Absent & 51 & 16 \\ Sparse & 22 & 64 \\ Medium & 8 & 19 \\ Dense & 19 & 1 \\ \mbox{Undulation of margin} & Absent & 43 & 18 \\ Present & 57 & 82 \\ Degree of undulation of margin & Weak & 76 & 54 \\ Medium & 24 & 44 \\ Strong & 0 & 2 \\ Shape of base & Obtuse & 76 & 28 \\ Rounded & 19 & 30 \\ Cordate & 5 & 42 \\ Shape of tip & Apiculate & 3 & 0 \\ Acute & 3 & 6 \\ Obtuse & 62 & 70 \\ \end{array}$				
$\begin{array}{c cccc} Medium & 17 & 17 \\ 17 \\ Pubescence on lower side & Absent & 51 & 16 \\ Sparse & 22 & 64 \\ Medium & 8 & 19 \\ Dense & 19 & 1 \\ Undulation of margin & Absent & 43 & 18 \\ Present & 57 & 82 \\ Degree of undulation of margin & Weak & 76 & 54 \\ Medium & 24 & 44 \\ Strong & 0 & 2 \\ Shape of base & Obtuse & 76 & 28 \\ Rounded & 19 & 30 \\ Cordate & 5 & 42 \\ Shape of tip & Apiculate & 3 & 0 \\ Acute & 3 & 6 \\ Obtuse & 62 & 70 \\ \end{array}$	Relief of surface of upper side			
$\begin{array}{cccc} \mbox{Pubescence on lower side} & Absent & 51 & 16 \\ Sparse & 22 & 64 \\ Medium & 8 & 19 \\ Dense & 19 & 1 \\ Undulation of margin & Absent & 43 & 18 \\ Present & 57 & 82 \\ Degree of undulation of margin & Weak & 76 & 54 \\ Medium & 24 & 44 \\ Strong & 0 & 2 \\ Shape of base & Obtuse & 76 & 28 \\ Rounded & 19 & 30 \\ Cordate & 5 & 42 \\ Shape of tip & Apiculate & 3 & 0 \\ Acute & 3 & 6 \\ Obtuse & 62 & 70 \\ \end{array}$	Rener of surface of upper side			
$\begin{array}{cccc} & Sparse & 22 & 64 \\ Medium & 8 & 19 \\ Dense & 19 & 1 \\ Undulation of margin & Absent & 43 & 18 \\ Present & 57 & 82 \\ Degree of undulation of margin & Weak & 76 & 54 \\ Medium & 24 & 44 \\ Strong & 0 & 2 \\ Shape of base & Obtuse & 76 & 28 \\ Rounded & 19 & 30 \\ Cordate & 5 & 42 \\ Shape of tip & Apiculate & 3 & 0 \\ Acute & 3 & 6 \\ Obtuse & 62 & 70 \\ \end{array}$	Pubescence on lower side			
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$\begin{array}{c c} \text{Undulation of margin} & \text{Absent} & 43 & 18 \\ & \text{Present} & 57 & 82 \\ \hline \text{Degree of undulation of margin} & \text{Weak} & 76 & 54 \\ & \text{Medium} & 24 & 44 \\ & \text{Strong} & 0 & 2 \\ \hline \text{Shape of base} & \text{Obtuse} & 76 & 28 \\ & \text{Rounded} & 19 & 30 \\ & \text{Cordate} & 5 & 42 \\ \hline \text{Shape of tip} & \text{Apiculate} & 3 & 0 \\ & \text{Acute} & 3 & 6 \\ & \text{Obtuse} & 62 & 70 \\ \hline \end{array}$		-	8	19
Present5782Degree of undulation of marginWeak7654Medium2444Strong02Shape of baseObtuse7628Rounded1930Cordate542Shape of tipApiculate30Acute360btuse62		Dense	19	1
$\begin{array}{ccc} \text{Degree of undulation of margin} & \text{Weak} & 76 & 54 \\ \text{Medium} & 24 & 44 \\ \text{Strong} & 0 & 2 \\ \text{Shape of base} & \text{Obtuse} & 76 & 28 \\ \text{Rounded} & 19 & 30 \\ \text{Cordate} & 5 & 42 \\ \text{Shape of tip} & \text{Apiculate} & 3 & 0 \\ \text{Acute} & 3 & 6 \\ \text{Obtuse} & 62 & 70 \\ \end{array}$	Undulation of margin	Absent		
Medium2444Strong02Shape of baseObtuse7628Rounded1930Cordate542Shape of tipApiculate30Acute360btuse62				
$\begin{array}{cccc} Strong & 0 & 2\\ Obtuse & 76 & 28\\ Rounded & 19 & 30\\ Cordate & 5 & 42\\ Shape of tip & Apiculate & 3 & 0\\ Acute & 3 & 6\\ Obtuse & 62 & 70\\ \end{array}$	Degree of undulation of margin			
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Rounded1930Cordate542Shape of tipApiculate30Acute36Obtuse6270	Shape of base			
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Shape of tipApiculate30Acute36Obtuse6270				
Acute 3 6 Obtuse 62 70	Shape of tip			
Obtuse 62 70	<u> </u>	*		
Rounded 32 24		Obtuse		
		Rounded	32	24

Continue...

Table 1. Continuation

	Descriptor	Class	Percentage (%)	
Length Short 53 4 Medium 47 64 Medium 47 64 Narrow 56 3 Midth Narrow 56 3 Medium 41 63 Length/width fruit ratio Small 50 40 Medium 41 54 Large 9 6 Shape at stalk end Broadly rounded 42 15 Rounded 32 31 1 Neck width in relation to that fruit Narrow 67 26 Medium 33 55 1 1 26 Neck width in relation to that fruit Narrow 67 26 1 26 Neck width in relation to that fruit Narrow 67 26 1 26 1 26 1 26 1 26 1 26 1 26 1 26 1 26 1 26 1 26 1 26 1 26 1 26 1 2 1	p.o.			
Medium4764Long032WidthNarrow563Medium4163Broad34Length/width fruit ratioBroad3Medium4154Large96Shape at stalk endBroadly rounded32Shape at stalk endRounded32Narrow6726Neck width in relation to that fruitNarrow67Neck width in relation to that fruitNarrow67Neck width in relation to that fruitNarrow67PointedDark yellow28Medium3355Broad019Color of skinPale yellow28Pale yellow2846Dark yellow4422Orange green2812Relief of surfaceSmooth54Rough4332Bumpy3100Longitudinal ridgesAbsent97Prominence of longitudinal ridgesAbsent100Present37Prominence of calyx in relation to thatSmall16Off fruitMedium4347Large600Large600Size of sepalSmall16Midgide collar around calyx cavityInconspicuous57Male pink929Pink020Dark pink020 <td>Fruit descriptors</td> <td></td> <td></td> <td></td>	Fruit descriptors			
Width Long 0 32 Width Narrow 56 3 Medium 41 63 Broad 3 44 Length/width fruit ratio Small 50 40 Medium 41 54 54 Shape at stalk end Broadly rounded 42 15 Shape at stalk end Broadly rounded 32 31 Truncate 5 2 2 Neck width in relation to that fruit Narrow 67 26 Neck width in relation to that fruit Narrow 67 26 Medium 33 55 Broad 0 19 Color of skin Pale yellow 28 46 24 22 212 Relief of surface Smooth 54 58 20 310 10 Longitudinal ridges Absent 97 93 10 25 458 55 Longitudinal grooves Absent 100 95 25 458 454 454 454 41 47	Length	Short		4
WidthNarrow563Medium4163Broad34Length/width fruit ratioSmall5040Medium4154Large96Shape at stalk endBroadly rounded4215Rounded32311Truncate52Pointed1026Neck width in relation to that fruitNarrow6726Neck width in relation to that fruitNarrow6726Nonge green281212Relief of surfaceSmooth5458Rough43323110Longitudinal ridgesAbsent9793Present0751616Longitudinal groovesAbsent10095Size of sepalSmall1626Medium424337Color of fleshMedium2546Large600Ridged collar around calyx cavitySmall6954Color of fleshWhite1110Cream80		Medium		
$\begin{array}{cccccccccccccccccccccccccccccccccccc$		U		
$\begin{tabular}{ c c c c c } \hline Broad & 3 & 4 \\ Length/width fruit ratio & Small & 50 & 40 \\ Medium & 41 & 54 \\ Large & 9 & 6 \\ Broadly rounded & 32 & 31 \\ Truncate & 5 & 2 \\ Pointed & 10 & 26 \\ Neck width in relation to that fruit & Narrow & 67 & 26 \\ Medium & 33 & 55 \\ Broad & 0 & 19 \\ Color of skin & Pale yellow & 28 & 46 \\ Dark yellow & 44 & 42 \\ Orange green & 28 & 12 \\ Relief of surface & Smooth & 54 & 58 \\ Rough & 43 & 322 \\ Bumpy & 3 & 10 \\ Longitudinal ridges & Absent & 97 & 93 \\ Present & 3 & 77 \\ Prominence of longitudinal ridges & Weak & 100 & 75 \\ Medium & 0 & 25 \\ Longitudinal grooves & Absent & 100 & 95 \\ Size of sepal & Small & 16 & 26 \\ Medium & 43 & 47 \\ Large & 41 & 27 \\ Diameter of calyx in relation to that fuit & Medium & 25 & 46 \\ of fruit & & & & & & & \\ Medium & 25 & 40 & 55 \\ Size of of flesh & White & 11 & 100 & 95 \\ Color of flesh & White & 11 & 100 & 95 \\ Color of flesh & White & 11 & 100 & 95 \\ Fresent & 0 & 55 \\ Size of outer flesh in relation to that Grappink & 0 & 20 \\ Present & 3 & 57 \\ Other & Medium & 25 & 46 \\ Medium & 43 & 47 \\ Large & 6 & 00 \\ Ridged collar around calyx cavity & Inconspicuous & 57 & 43 \\ Crappink & 0 & 20 \\ Prink & 0 & 20 \\ Prink & 0 & 20 \\ Present & 33 & 64 \\ Motiled & 19 & 24 \\ Grittiness of outer flesh in relation to that or ale pink & 0 & 18 \\ Orange pink & 0 & 20 \\ Present & 67 & 36 \\ Thickness of outer flesh in relation to that or ale pink & 0 & 18 \\ Orange pink & 0 & 10 \\ Seed descriptors & & & & & & & & & & & & & & & & & & &$	Width			
Length/width fruit ratioSmall5040Medium4154Large9Shape at stalk endBroadly rounded42Shape at stalk endBroadly rounded32Shape at stalk endBroadly rounded42Neck width in relation to that fruitNarrow67Neck width in relation to that fruitNarrow67Color of skinPale yellow28Color of skinPale yellow28Relief of surfaceSmooth54Rough4332Bumpy310Longitudinal ridgesAbsent97Prominence of longitudinal ridgesAbsent100Present37Prominence of longitudinal ridgesPresent0Size of sepalSmall16Color of fleshLarge41Of fruit10095Present054Size of sepalSmall60Ridged collar around calyx cavityInconspicuous57Color of fleshWhite11Orange pink020Dark pink020Dark pink020Color of fleshEven81Pale pink929Pink020Dark pink020Dark pink020Dark pink020Dark pink020Dark pink020Dark pink0				
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	*		-	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	Length/width fruit ratio			
Shape at stalk endBroadly rounded Rounded 42 15Rounded 32 31 Truncate 5 2 Pointed 10 26 Neck width in relation to that fruitNarrow 67 26 Medium 33 55 Broad 0 11 26 Neck width in relation to that fruitNarrow 67 26 Medium 33 55 Broad 0 0 Dark yellow 28 46 $Dark yellow$ 28 46 Dark yellow 44 42 $Drange green$ 28 12 Relief of surfaceSmooth 54 58 $Broad$ 0 19 Longitudinal ridgesAbsent 97 93 10 93 Longitudinal groovesAbsent 100 95 512 6 6100 75 Longitudinal groovesAbsent 100 95 512 60 6100 55 Size of sepalSmall 16 26 60 6100 54 of fruitMedium 25 46 27 743 Color of fleshWhite 11 100 95 512 Color of fleshWhite 11 100 26 Redium 25 46 276 60 20 Redium 25 46 277 43 Color of fleshWhite 11 100 26 Color of fleshWhite 11				
Rounded3231Truncate52Pointed1026Neck width in relation to that fruitNarrow6726Medium3355Broad019Color of skinPale yellow2846Dark yellow2846Dark yellow4442Orange green2812Relief of surfaceSmooth54StageBumpy310Longitudinal ridgesAbsent97Prominence of longitudinal ridgesWeak10075Medium025100Longitudinal groovesAbsent10095Size of sepalSmall1626Medium4347127Diameter of calyx in relation to thatSmall6954of fruitMedium2546Large600Ridged collar around calyx cavityInconspicuous5743Color of fleshWhite1110Cream801818Pale pink92919Pink02022Brink020Dark pink018Orange ink03Orange ink03Orange pink010Color of fleshEven81Present6736Thickness of outer flesh in relation to73Mottle	Shama at stalls and			
$\begin{tabular}{ c c c c } \hline Truncate & 5 & 2 \\ Pointed & 10 & 26 \\ Necked & 11 & 26 \\ Medium & 33 & 55 \\ Broad & 0 & 19 \\ Color of skin & Pale yellow & 28 & 46 \\ Dark yellow & 28 & 46 \\ Dark yellow & 44 & 42 \\ Orange green & 28 & 12 \\ Relief of surface & Smooth & 54 & 58 \\ Rough & 43 & 32 \\ Bumpy & 3 & 10 \\ Longitudinal ridges & Absent & 97 & 93 \\ Present & 3 & 7 \\ Prominence of longitudinal ridges & Absent & 100 & 95 \\ Present & 3 & 7 \\ Prominence of longitudinal ridges & Absent & 100 & 95 \\ Size of sepal & Small & 16 & 26 \\ Small & 16 & 26 \\ Nedium & 43 & 47 \\ Large & 41 & 27 \\ Diameter of calyx in relation to that of fruit & Medium & 25 & 46 \\ Large & 6 & 0 \\ Ridged collar around calyx cavity & Inconspicuous & 57 & 43 \\ Conspicuous & 43 & 57 \\ Color of flesh & White & 11 & 10 \\ Cream & 80 & 18 \\ Pale pink & 9 & 29 \\ Pink & 0 & 20 \\ Dark pink & 0 & 20 \\ Dark pink & 0 & 20 \\ Dark pink & 0 & 20 \\ Crange pink & 0 & 20 \\ Crange pink & 0 & 20 \\ Dark pink & 0 & 20 \\ Dark pink & 0 & 20 \\ Cream & 80 & 18 \\ Pale pink & 9 & 29 \\ Pink & 0 & 20 \\ Dark pink & 0 & 10 \\ Cream & 80 & 18 \\ Pale pink & 9 & 29 \\ Pink & 0 & 20 \\ Dark pink & 0 & 10 \\ Cream & 80 & 18 \\ Pale pink & 9 & 29 \\ Pink & 0 & 20 \\ Dark pink & 0 & 10 \\ Cream & 81 & 76 & 36 \\ Thickness of outer flesh in relation to that orange pink & 0 & 30 \\ Orange & 0 & 2 \\ Evenness of color flesh & Even & 81 & 76 & 36 \\ Thickness of outer flesh in relation to thin & 78 & 10 \\ Core diameter & Under & Under$	Shape at stark end			
$\begin{array}{c c c c c c c c c c c c c c c c c c c $				
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those of guava. For fruit length, only a few guava accessions (4%) were grouped in the short class, while

53% of "araçá" accessions were classified into the short class. For fruit width, only a few guava accessions (3%) were grouped in the narrow class, while 56% of "araçá" accessions were classified into the narrow class (Table 1). These differences in fruit size could be attributed to the long-term selection to which guava, a *Psidium* cultivated species, has been submitted, in opposition to wild-growing "araçá".

Another difference among "araçá" and guava accessions was observed in the fruit shape at the stalk end: "araçá" accessions were grouped into the classes of broadly rounded and rounded (74%), while those of guava were grouped into the classes of pointed and necked (52%) (Table 1). Regarding flesh fruit color, "araçá" accessions were grouped as cream (80%), white (11%) and pale pink (9%), while guava accessions were almost evenly distributed among all seven classes of UPOV for this descriptor. The most common colors of guava flesh were pale pink (29%), pink (20%), dark pink (18%) and cream (18%). According to Gonzaga Neto et al. (2001), pink and orange colors are largely accepted by Brazilian market, which could explain the concentrations of prospected guava germplasm into these classes.

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