“MANDIOCA BRAVA” IN SOUTHEAST BRAZIL FROM DATA OF THE ATLAS LINGUISTIC PROJECT OF BRAZIL – ALiB

Valter Pereira ROMANO
Federal University of Santa Catarina – UFSC *
valter.pereira.romano@gmail.com

Abstract

This article is a descriptive study whose corpus of analysis is part of the unprecedented database of the Atlas Linguistic Project of Brazil - ALiB. From the geolinguistic perspective, the diatopic distribution of designations that cover the concept of question 51 of the ALiB Project’s Semantic-Lexical Questionnaire (National Committee 2001) is discussed. Data are presented in graphic, table and linguistic maps from 316 respondents, divided equally between men and women and two age groups (age group I: 18 to 30 / age group II: 50 to 65 years), and distributed in 79 municipalities in the Southeast Region of Brazil, with four respondents with basic education per location. In summary, from analyzed data, there is high response abstention rate in the Region and use of two main forms of mandioca (cassava) and mandioca brava (wild cassava) depending on the federal state.

Keywords

lexical variation, Brazil Southeast Region, ALiB Project

“MANDIOCA BRAVA” EN EL SURESTE DEL BRASIL.
DATOS DEL PROYECTO DEL ATLAS LINGÜÍSTICO DEL BRASIL – ALiB

Resumen
Este artículo es un estudio descriptivo cuyo corpus de análisis forma parte de la base de datos inédita del Proyecto de Atlas Lingüístico del Brasil - ALiB. Desde la perspectiva geolingüística, se examina la distribución diatópica de las designaciones que cubren el concepto de la pregunta 51 del cuestionario semántico-léxico del Proyecto ALiB (Comité Nacional 2001). Se presentan los datos en gráficos, tablas y mapas lingüísticos correspondientes a 316 encuestados, divididos por igual entre hombres y mujeres y pertenecientes a dos grupos de edad (grupo de edad I: 18 a 30 años / grupo de edad II: 50 a 65 años), y distribuidos en 79 municipios de la región sureste del Brasil, con cuatro encuestados con educación básica por localidad. En resumen, a partir de los datos analizados, existe una alta tasa de abstención de respuesta en la región y en el uso de dos formas principales de mandioca (yuca) y mandioca brava (yuca silvestre) según el estado federal.

Palabras clave
variació léxica, regió suèst del Brasil, Proyecte ALiB

“MANDIOCA BRAVA” MANDIOCA BRAVA” EN EL SUD-EST DEL BRASIL.
DADES DEL PROJECTE DE L’ATLES LINGÜÍSTIC DEL BRASIL – ALiB

Resum
Aquest article és un estudi descriptiu del corpus d’anàlisi del qual forma part de la base de dades inèdita del Projecte d’Atles Lingüístic del Brasil - ALiB. Des de la perspectiva geolingüística, s’examina la distribució diatópica de les designacions que abracen el concepte de la pregunta 51 del qüestionari semânticolèxic del Projecte ALiB (Comitè Nacional 2001). Es presenten les dades en gràfics, taules i mapes lingüístics corresponents a 316 enquestats, dividits equitativament entre homes i dones i pertanyents a dos grups d’edat (grup d’edat I: 18 a 30 anys / grup d’edat II: 50 a 65 anys), i distribuïts en 79 municipis de la regió sud-est del Brasil, amb quatre enquestats amb educació bàsica per localitat. En resum, a partir de les dades analitzades, apareix una taxa elevada d’abstenció de resposta en la regió i en l’ús de dues formes principals de mandioca (yuca) i mandioca brava (yuca silvestre) segons l’estat federal.

Paraules clau
variació léxica, regió sud-est del Brasil, Projecte ALiB

1. Introduction

This article presents a study on lexical variation in geolinguistic corpus collected for the elaboration of the Linguistic Atlas of Brazil (ALiB). An approach that aims to discuss the designatives for question 51 of the Lexical-Semantic Questionnaire: “...white root that is not suitable for eating and grating to make flour (cassava flour, starch)?” (National
This question is complementary to question 50, whose referent is the tuber that looks like this, but, on the contrary, it is edible, in natura, even, without the need for industrial processing due to the low content of hydrocyanic acid (HCN).

This work uses data collected in network of points from inland areas as corpus of analysis, making up the speech of 316 Brazilians living in 79 municipalities in the Southeast Region, comprising four federal states: São Paulo (SP), Rio de Janeiro (RJ), Minas Gerais (MG) and Espírito Santo (ES) (Appendix A and B). It is justified by the need for previous studies carried out with the corpus still unprecedented in order to contribute to the future volumes of the national atlas.

The text is organized into six sections. The first one, the introduction, presents the subject, objective and justification of the study. The second section provides some information about this typically Brazilian root. In the third section, the Atlas Linguistic Project of Brazil is briefly presented. Section 4 provides a detailed description of the study materials and methods; followed by discussion of results in section 5, and final considerations in section 6. Finally, references and appendix A and B are presented, with network of points.

2. Cassava in Brazil

*Manihot esculenta Crantz*, cassava scientific name, is originally from South America, most likely from Brazil, and this is one of the most characteristic food in the country, served at the table of Brazilians in different ways. It was cultivated by the natives even before the arrival of Portuguese settlers in America, as Motta (2019) asserts, when referring to the Portuguese colonizer Pero Vaz Caminha in his letter to the king of Portugal: "They eat nothing but something other than a yam that grows out of the earth" (Caminha apud Motta 2019: 26). According to Motta, yam mentioned here by the registrar is cassava, called the root of Brazil.
Motta (2019) asserts the great importance of the tuber for feeding the natives that led the root to receive various denominations that refer to their crucial role in food, such as “bread of the land” or “bread of the tropics”, given by Father José de Anchieta, in 1553, upon arrival in the New World. The author also makes a point of quoting the folklorist Luís da Câmar Cascudo that, in his book on food History in Brazil, called cassava “queen of Brazil”.

According to EMBRAPA, the Brazilian Agricultural Research Corporation, a government agency linked to the Ministry of Agriculture, Livestock and Supply, more than four thousand species of cassava have already been cataloged; however, those with minimum content of hydrocyanic acid (HCN) are indicated for food. Edible cassava, table type, can be consumed in different ways such as fried, boiled, in purees, cakes and breads. This cassava is also known as macaxeira (macaxeira cassava) and aipim (aipim cassava), depending on the region of the country. Mandioca amarga or brava (bitter or wild cassava) due to the high content of HCN is not recommended for culinary use before detoxification (drying) and industrial processing for preparation of flours, starches, cassava flours. Differentiating between the two varieties in terms of physical and tactile aspects is not easy, except in laboratory tests not to run poisoning risks.

However, it is not in all Brazilian regions that both species are known. In some, the most widespread is the edible mandioca (cassava). According to studies developed within ALiB Project scope to designate questions 50, “white root inside, covered by a brown bark, which is cooked to eat”, and 51, “root similar to _____ [cf. item 50], which is not suitable for eating. It is grated to make flour (cassava flour, starch)?”, from Brazilian capitals data (Roman Aguilera, on press), and documented in the maps L08 (aipim) (aipim cassava), and L09 (mandioca) (cassava), from Linguistic Atlas of Brazil (Cardoso et al. 2014b).

This study focuses on the description of the lexical variants for the designatives of question 51, in the corpus referring to the Southeast Region of the country,
complementing previous studies carried out on the designations for question 50, whose referent is widely known throughout Brazilian territory.¹

3. Linguistic Atlas Project in Brazil

Linguistic Atlas of Brazil (ALiB) is a national project, of an interinstitutional nature, which directly involves nine major Brazilian public universities, and it has been in development since 1996, year in which project activities began; it was recommended in the 1950s by eminent philologists and linguists such as Serafim da Silva Neto, Celso Cunha, Antenor Nascentes. Indeed, it had already been a commitment made by the Federal Government through a presidential decree in 1952.²

Given the adversities at the time, mainly due to a lack of human resources, the impetus to start ALiB activities came at a time when geographic studies in the country already counted on the publication of five state atlases. Previous Atlas of Baianos speak - APFB (Rossi et al., 1963), the Outline of a linguistic atlas of Minas Gerais - EALMG (Ribeiro et al. 1977), the Linguistic Atlas of Paraíba – ALPB (Aragão & Menezes 1984), the Linguistic Atlas of Sergipe (Ferreira et al. 1987), and the Linguistic Atlas of Paraná (Aguilera 1994).

At the time when Brazilian dialectologists from all over the country, assisted by Professor Michel Contini, director of the Dialectologie Centre of Université Sthendal Grenoble 3, and member of the Atlas Steering Committee linguarum Europae, met at the Federal University of Bahia, Salvador. During a seminar, perspectives of Geolinguistics in Brazil was discussed under the chair of the esteemed professor Suzana Cardoso, a National

¹ There are other studies developed and under development by the author of the article on mandioca mansa (soft cassava) or aipim (aipim cassava) in other Brazilian regions with the corpus of ALiB – inland.
Committee was formed, which started to elaborate the atlas of this country of continental dimensions.\textsuperscript{3}

ALiB went through different moments. From 1996 to 2001, the methodology was defined in terms of the definition of the network of points, profile respondents, structuring and testing of a data collection instrument that would allow recording the largest number of linguistic aspects of all regions, from small to large municipalities. Thus, by methodology adopted, ALiB is constituted as an urban and multidimensional atlas (Thun 2000).

Coming up to the final version of the data collection instrument, Questionnaires 2001 (National Committee 2001), extensively tested in experimental surveys, from 2001 to 2013, interviews were conducted documenting the language spoken in Brazilian territory by 1100 informants, comprising 250 municipalities. In 2014, the first two volumes referring to some data from 25 Brazilian capitals were made public.\textsuperscript{4} Volume 1 - Introduction, brings the history of ALiB and its methodological aspects (Cardoso et al. 2014a) and Volume 2 - Linguistic maps 1, a set of 159 cartograms, 46 phonetic, 106 semantic-lexical and seven morphosyntactic, in addition to 10 introductory maps (Cardoso et al. 2014b).

Next volumes of ALiB (volumes 3, 4 and 5, under organization) will bring data from capitals, and the subsequent volumes will address data from inland areas network of points. For this purpose, previous studies are being carried out with data from country’s inland areas, such as Ribeiro (2012), Portilho (2013), Romano (2015), Santos (2016), Chofard (2019), Yida (2019), among others, to mention some developed at the graduate level (master and doctorate degree). The studies listed deal with lexical aspects of

\textsuperscript{3} From 1996 to 2018, the chair of the ALiB Committee was under the responsibility of professor Suzana, who passed away in May 2018. Two years earlier, in 2016, the Committee underwent a reformulation bringing together younger generation of linguists expanding its constitution to 13 members. Currently, the chair of the Committee is under the responsibility of the professor Jacyra Andrade Mota, from Federal University of Bahia.

\textsuperscript{4} Palmas, capital of the state of Tocantins, and Brasília, of the Federal District, are excluded, due to the principles adopted regarding the founding date, 1989 and 1961, respectively, which makes it impossible to find informants of the second age group who were natural and with parents who are also natural in the localities.
Brazilian Portuguese (BP) and contribute to the establishment of linguistic areas in the national territory and the discussion of the classic dialectal division proposed by Antenor Nascentes ([1920] 1953). There are also other ongoing studies dealing with data from inland areas regarding phonetic-phonological and morphosyntactic aspects.

4. Materials and methods

To select network of points, ALiB did not follow the traditional criteria of dialectal studies such as seniority, isolation degree of localities in relation to more developed centers. On the contrary, in its network, small, medium and large cities were selected according to historical, demographic and cultural criteria and suggestions of Nascentes (1958).

In the Southeast Region, corresponding to the states of São Paulo (SP), Minas Gerais (MG), Rio de Janeiro (RJ) and Espírito Santo (ES), network of points is made up of 79 municipalities, numbered 127 (Januária-MG) to 206 (Parati –RJ) (Appendix A and B). Therefore, they are 37 cities in SP, 23 in MG, 17 in RJ and 5 in ES. In each of these cities, four respondents with elementary education level were interviewed. A man and a woman aged from 18 to 30, and a man and a woman aged from 50 to 65, originally from the locality, with parents also born and resident in the region, who fulfilled the requirement of never having left the place of origin for more than a third of their lives. In the capitals, in addition to these four informants, there are four more with the same profile, but with a higher education level.

This research contemplates data from inland areas and capitals, except for university level education, making up the speech of 316 people of at most elementary school education that answered the ALiB Questionnaires (National Committee, 2001). Respondents' answers to question 51 of the Semantic-Lexical Questionnaire were selected for this study: "A root similar to ____ (cf. item 50) that is not suitable for eating
and grating to make flour (cassava flour, starch)?” By consulting transcripts and listening to recorded interviews, spreadsheets were organized in Excel® program with responses according to respondents’ profile (gender, age group, location). After this organization, the answers were inserted in SGVCLin® - Software for Generation of Visualization of Linguistic Maps (Romano, Seabra & Oliveira 2014), computational tool that allows, through a computerized database, quantification in reports and cartography of data in a previously prepared base map and georeferenced to represent thematic maps.

SGVCLin® allows generation of different types of linguistic and reports maps after all the information has been inserted in the database. This is a free use desktop software available to the academic community and widespread in Brazil.5 Among selected maps for results presentation of this study, are:

(i) Diatopic distribution with specific productivity of the items (pie chart) for a broad view of the designatives in question variation;

(ii) Polygonal area distribution, which presents the areas of occurrence or co-occurrence of items with or without hatches considering the average distance between two locations for the drawing of a virtual line of isolexic;

(iii) Gradual area distribution in which a gradation of occurrences of the items is observed, also revealing in a virtual way the isolexic and / or heterolexic lines for the studied items;

It is important to mention that the presented linguistic maps are experimental ad hoc elaborated for the present study, and may support the development of the atlas in future steps, but the Project official base maps were used for data visual presentation. The study focuses specifically on the most productive items in the corpus including abstaining from responding. Variants occurrences obtaining less than 1% of representativeness were grouped, leaving them to be treated more specifically on another occasion.

5 To install and use the software, access: < http://sgvclin.altervista.org/>. 
5. Discussion of results

Question 51 obtained 329 records, including “non-answers”, which represent 34.65% of productivity in the analyzed corpus (114 informants declared they did not know a name for the poisonous root, the one that is not suitable for eating). Among the list of variants, there are 18 registered lexical items and many of them with a single occurrence, as shown in Table 1, below:

<table>
<thead>
<tr>
<th>Variant</th>
<th>Nº of occurrence</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Não resposta (Non-answer)</td>
<td>114</td>
<td>34.65</td>
</tr>
<tr>
<td>Mandioca brava (Wild cassava)</td>
<td>106</td>
<td>32.22</td>
</tr>
<tr>
<td>Mandioca (Cassava)</td>
<td>71</td>
<td>21.58</td>
</tr>
<tr>
<td>Aipim (Aipim cassava)</td>
<td>9</td>
<td>2.74</td>
</tr>
<tr>
<td>Mandioca venenosa (Poisonous cassava)</td>
<td>7</td>
<td>2.13</td>
</tr>
<tr>
<td>Mandioca amarela (Yellow cassava)</td>
<td>3</td>
<td>0.91</td>
</tr>
<tr>
<td>Mandioca cacaú (Cocoa cassava)</td>
<td>3</td>
<td>0.91</td>
</tr>
<tr>
<td>Araruta (Arrowroot cassava)</td>
<td>3</td>
<td>0.91</td>
</tr>
<tr>
<td>Mandioca do mato (Cassava from the bush)</td>
<td>2</td>
<td>0.61</td>
</tr>
<tr>
<td>Macaxeira (Macaxeira cassava)</td>
<td>2</td>
<td>0.61</td>
</tr>
<tr>
<td>Mandioca aguada (Watery cassava)</td>
<td>1</td>
<td>0.30</td>
</tr>
<tr>
<td>Mandioca vassourinha (Vassourinha cassava)</td>
<td>1</td>
<td>0.30</td>
</tr>
<tr>
<td>Mandioca malgós (Malgós cassava)</td>
<td>1</td>
<td>0.30</td>
</tr>
<tr>
<td>Mandioca velha (Old cassava)</td>
<td>1</td>
<td>0.30</td>
</tr>
<tr>
<td>Mandioca branca (White cassava)</td>
<td>1</td>
<td>0.30</td>
</tr>
<tr>
<td>Mandioca dura (Hard cassava)</td>
<td>1</td>
<td>0.30</td>
</tr>
<tr>
<td>Mandioca marroquina</td>
<td>1</td>
<td>0.30</td>
</tr>
</tbody>
</table>
Table 1 - Productivity of items registered for question 51 of the QSL
Source: ALiB Project database - SGVCLin® reports

<table>
<thead>
<tr>
<th>(Moroccan cassava)</th>
<th>Manaíba (Manaíba cassava)</th>
<th>Macaxeta (Macaxeta cassava)</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>1</td>
<td>329</td>
</tr>
<tr>
<td></td>
<td>0.30</td>
<td>0.30</td>
<td></td>
</tr>
</tbody>
</table>

Note high response abstention rate in the Southeast competes with mandioca brava (wild cassava) variants (32,32%, 106 records) and mandioca (cassava) (22,58%, 71 records). With lower representativeness index, aipim (aipim cassava) (9 records, 2,74%) and mandioca venenosa (poisonous cassava) (7 records, 2,13%). Items that obtained less than 1% of productivity summarize together 6,65% in the general corpus of the Region.

Dividing these occurrences across federal state, in Figure 1 it is possible to observe that “non-answer” is found in the four federal states, but with leadership in localities of Espírito Santo (ES), 47,62%, competing in SP and MG with mandioca brava (wild cassava) variant, whose productivity is 39,22% and 41,67% in each state, respectively. Different behavior must be observed in the localities of Rio de Janeiro (RJ), wherein variant that leads designatives of question 51 is mandioca (cassava), with the item mandioca brava (wild cassava) with low productivity (3,39%). Mandioca (cassava) item was also the most productive variant in ES, 28,57%, behind only the “no answer”.

©Universitat de Barcelona
Three types of maps from geolinguistic point of view are presented, they are: (i) Diatopic distribution with productivity at each point for a broader view. (ii) That of the gradual area distribution for the items mandioca (cassava), mandioca brava (wild cassava) and “no answer”. (iii) The polygonal area distribution with and without hatches, in which are isolexic and heterolexic areas for mandioca (cassava), mandioca brava (wild cassava), less productive forms (grouped), mandioca venenosa (poisonous cassava) and aipim (aipim cassava).

In Figure 2, specific distribution of the main forms is observed, including the “non-response” (red color) in inland SP, MG and ES, in a broader way. Mandioca brava (wild
cassava) (in blue) appears mainly in MG and SP territory, whereas mandioca (cassava) (in green) is more frequent in cities of Rio de Janeiro (RJ). In yellow, with group of less productive forms, are the variants distributed across the four states, but with a wide area of occurrence in MG, northwest of SP and some points of RJ and ES, whose areas can be seen more clearly in the area distribution map presented in Figure 3.

Figure 2. Linguistic map of designations for question 51 of the QSL in the Southeast Region
Source: ALiB Project database - Experimental linguistic map drawn in SGVCLin®
Figure 3. Distribution of low-productive forms designation problems 51 of the QSL
Source: ALiB Project database - Experimental linguistic map drawn in SGVCLin®

As for *aipim* (**aipim cassava**) (in black) and *mandioca veneno(sa)** (**poisonous cassava**) variants (in lilac), which presented low occurrence index, Figure 4 shows the distribution of these items. It reveals that *aipim* (**aipim cassava**) appears between the states of RJ and MG, in the capital of ES (point 190 - Vitória), coast of SP (point 184 - Santos) and in the coast of RJ (point 206 - Parati), besides occurring in isolation in a location in the south of MG (Passos - point 140).
Figure 4. Aipim (aipim cassava) and mandioca veneno(sa) (poisonous cassava) area distribution as designations for question 51 of the QSL
Source: ALiB Project database - Experimental linguistic map drawn in SGVCLin

_cassava venenosa (poisonous cassava)_ is present in isolated points of MG (points 142 - Ouro Preto and 144 - Lavras), in five points of SP (151 - Votuporanga; 173 - Campinas), in the capital (179 - São Paulo) and in Taubaté (point 175) and Guaratinguetá (point 176), the last two cities located close to the state of RJ.

In turn, the variant that was most widely distributed throughout the territory is _mandioca brava (wild cassava)_ and, considering the item gradual area distribution, it can be seen in Figure 5 that there are locations with 100% occurrence, mainly in MG and SP. However, in a large part of the investigated territory (Southeast Region), _mandioca brava (wild cassava)_ occurrence degree ranges from 25 to 75% of incidence.
Figure 5 – Mandioca brava (wild cassava) gradual area distribution as designation for question 51 of the QSL
Source: ALiB Project database - Experimental linguistic map drawn in SGVCLin®

With a smaller coverage area, but with 100% of realization productivity in RJ and ES localities, is the item mandioca (cassava) as a designation for the inedible root, as shown in Figure 6. It shows the item in SP state with 25 to 75%, index, mainly in the state center, which, through a central aisle, it reaches the extreme west of São Paulo, spreading over SP and Mato Grosso do Sul (MS) political state border.

Still in the state of SP, but with lower productivity, the item is observed in the south coast, and in more northern locations in the state of MG. However, it is in the state of RJ and ES that the variant is registered most productively, reaching in some localities in Rio de Janeiro (RJ) with 100% representativeness.
Figure 6. Mandioca (cassava) gradual area distribution as designation for question 51 of the QSL
Source: ALiB Project database - Experimental linguistic map drawn in SGVCLin®

Placing mandioca (cassava) and mandioca brava (wild cassava) items on a single map, the two main variants of the analyzed corpus, a large area can be seen in Figure 7. In which exclusively cassava brava (wild cassava) variant (horizontal hatch) occurs, and a more restricted area, especially to RJ and ES, where only mandioca (cassava) variant (vertical hatch) occurs. Still on this map, it is possible to observe points of co-occurrence of the two forms (dotted hatch) in various areas of the four states that make up the Southeast Region.
Figure 7 – Mandioca (cassava) and mandioca brava (wild cassava) polygonal area distribution as designations for question 51 of the QSL
Source: ALiB Project database - Experimental linguistic map drawn in SGVClin*

Finally, yet importantly, it is observed that “non-answer” represents an interesting data to be considered, since data survey, in the Southeast Region, there is a lack of knowledge of two varieties of this tuber. Most of respondents, as shown in Figure 8, and in graph that starts the discussion of results (Figure 1), states ignore the root that is grated exclusively to make flour and it cannot be eaten until after industrial processing, given the toxicity of HCN found in the tuber in natura.

In this case, abstaining from responding is found in a large part of the Southeast Region, complementing the reading of linguistic maps, previously presented.
Figura 8 – Não resposta (non-answer) gradual area distribution as designation for question 51 of the QSL

Source: ALiB Project database - Experimental linguistic map drawn in SGVCLin®

When looking at the designatives for question 51, in addition to the diatopic dimension, it can be seen that of the 114 abstentions (“no answer”), 76 of them (66%) were first age group respondents, according to data survey in SGVCLin® reports. In other words, the younger respondents showed less world knowledge in relation to the tuber varieties.

Mandioca brava (wild cassava) variant was found in 76 responses from respondents in age group II, which is equivalent to 67% of the answers obtained for question 51. Mandioca (cassava) item maintained an equal productivity, as well as aipim (aipim cassava). On the other hand, less productive forms with less than 1% productivity, proved to be more common among respondents from age group II, 17 of the 22 occurrences (77%). Mandioca veneno (sa) (poisonous cassava) occurred only among young
respondents (age group I), three records. Corpus productivity, detailing responses by gender, there was no difference, because the absolute and relative numbers appear in an equitable manner between both sexes.

6. Final considerations

With this article, it was possible to observe the diatopic distribution of lexical items to designate a typical Brazilian food that, in certain regions of the country, as it is the case of the Southeast, most people do not know. Data showed different behavior among states.

As for designations for the referent, there is a certain linguistic similarity between SP and MG and between RJ and ES. However, in ES, abstaining from response predominated. In SP and MG, mandioca brava (wild cassava) variant competed with abstention in approximate percentage rates. In RJ, in turn, mandioca (cassava) variant predominates as a designation for question 51 of the QSL, and abstention remained below 20% in the state. As for the age group variable, mainly older people knew how to assign some designation to the issue at hand (mandioca or mandioca brava) (cassava or wild cassava), while among the youngest (age group I), the vast majority did not know how to answer. Although the focus of this study was not the discussion beyond the diatopic topic, this article provides clues for reflections on the importance of certain items of the QSL to be observed beyond diatopy, because it reveals differences between generations, as it is the case of mandioca or mandioca brava (cassava or wild cassava). ALiB, as a multi-dimensional atlas, can handle this.

However, for detailed description, it is necessary to continue the research to compare data with those from other regions: North, Northeast, Midwest and South of the country correlating the results observed in question 51 with those recorded for question 50 on mandioca mansa, aipim or macaxeira (soft cassava, aipim cassava or macaxeira
cassava). For the time being, these studies are still in progress.

References


RIBEIRO, J. et al. (1977) Esboço de um atlas linguístico de Minas Gerais, Rio de Janeiro: Casa de Rui Barbosa.


APPENDIX A - SOUTHEAST REGION MAP WITH NETWORK OF POINTS
## APPENDIX B - SOUTHEAST REGION NETWORK OF POINT

### Minas Gerais – MG
- 127 – Januária
- 128 – Janaúba
- 129 – Pedra Azul
- 130 – Unaí
- 131 – Montes Claros
- 132 – Pirapora
- 133 – Teófilo Otoni
- 134 – Diamantina
- 135 – Uberlândia
- 136 – Patos de Minas
- 137 – Campina Verde
- 138 – Belo Horizonte
- 139 – Ipatinga
- 140 – Passos
- 141 – Formiga
- 142 – Ouro Preto
- 143 – Viçosa
- 144 – Lavras
- 145 – São João Del Rei
- 146 – Muriaé
- 147 – Poços de Caldas
- 148 – Juiz de Fora
- 149 – Itajubá
- 150 – Jales
- 151 – Votuporanga
- 152 – São José do Rio Preto
- 153 – Barretos
- 154 – Franca
- 155 – Adamantina
- 156 – Aracatuba
- 157 – Ribeirão Preto
- 158 – Lins
- 159 – Ibitinga
- 160 – Mococa
- 161 – Presidente Epitácio
- 162 – Adamantina
- 163 – Araraquara
- 164 – Teodoro Sampaio
- 165 – Presidente Prudente
- 166 – Marília
- 167 – Bauru
- 168 – Moji Mirim
- 169 – Assis
- 170 – Bernardino de Campos
- 171 – Botucatu
- 172 – Piracicaba
- 173 – Campinas
- 174 – Bragança Paulista
- 175 – Taubaté
- 176 – Guaratinguetá
- 177 – Itapetininga
- 178 – Sorocaba
- 179 – São Paulo
- 180 – Caraguatatuba
- 181 – Itararé
- 182 – Capão Bonito
- 183 – Itanhaém
- 184 – Santos
- 185 – Ribeira
- 186 – Registro
- 187 – Cananeia

### São Paulo – SP

#### Espírito Santo – ES
- 188 – Barra de São Francisco
- 189 – São Mateus
- 190 – Vitória
- 191 – Santa Teresa
- 192 – Alegre