

TESES E DISSERTAÇÕES/THESIS AND DISSERTATIONS

TITLE: Root Systems Performance of three Corn Varieties in Aqueous Media With and Without Calcium and Aluminum
AUTHOR: Maria Cecília Bello de Lima
DATE: April 9th 1984
PLACE: Botany – UFRPe, Pe
LEVEL: Master
EXAMINER BOARD: Margarida A. Lemos (Adviser) – UFRPE
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ABSTRACT – The degree of tolerance to aluminum of the corn variety “Dentado Composto” was related to of a tolerant variety “Cateto Colombia 96/71”, and a susceptible one “Cateto Al 20268”, by comparing the growth of their root systems in aqueous media with and without calcium and aluminum. The experimental design used was a 3 x 2 factorial in random blocks the following parameters were studied: depth of the main root in the solution, number and total length of seminal roots, pH variations in the solution and morphological aspects of the root system during 10 days of experiment. “Dentado Composto” showed intermediate tolerance compared to “Cateto Colombia 96/71” and “Cateto Al 20268”, which demonstrated their respective tolerance and susceptibility. Further research should be conducted with “Dentado Composto” in relation to its aluminum tolerance, using lower aluminum and/or higher calcium concentrations. In this case, toxicity symptoms could be less evident and the variety would be considered as viable in a breeding program aiming at the development of aluminum tolerant varieties to be used in areas where mechanical and economical aspects make it unfeasible to lime the soil in order to overcome production limitations imposed by aluminum toxicity.

TITLE: Diatoms (Bacillariophyceae) Distribution at Alagoas and Sergipe States (Brazil) Continental Shelf
AUTHOR: Márcia Silva Sardeiro
DATE: April 17th 1984
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ABSTRACT – Taxonomic and ecological studies were carried out on diatoms from the continental shelf off Alagoas and Sergipe States (Brazil). The plankton samples were collected by horital hauls near surface by the vessel (AKAROA). Sixty-five (65) species, one (1) variety and two (2) forms were

identified, belonging to thirty (30) genera and thirteen (13) families. The most representative genera were *Chaetoceros* and *Rhizosolenia* with thirteen (13) and eleven (11) species, respectively. The most representative species were: *Chaetoceros coarctatus*, *Chaetoceros didymus*, *Rhizosolenia calcar-avis*, *Bacteriastrum delicatulum*, *Bacteriastrum hyalinum*, *Chaetoceros lorenzianus*, *Hemiaulus membranaceus*, *Hemidiscus hardmanianus*, *Rhizosolenia alata* f. *infica* e *Rhizosolenia styliformis*, occurring in more than 50% of the studied stations. The distribution of the species were conditioned to the oceanographic conditions of the area. The neritic species predominated upon the oceanic ones, because the small width of the Northeast Brazilian shelf. Among the identified species some were new occurrences to the Northeast Brazilian shelf: *Asterolampra marylandica*, *Chaetoceros cinctus* and *Navicula mollis*. This last one cited for the first time in Brazil.

TITLE: Joint Analyses of Sugar Cane (*Saccharum* spp.) Yield Trials, Pernambuco State

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DATE: April 23th 1984

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ABSTRACT – This study aims to improve the final evaluation of sugar cane (*Saccharum* spp) variety trial in Pernambuco state, Brazil. It includes 24 yield trials and 61 genotypes.

The trials were grouped according to the error variance and such way that the difference between the smallest error variance did not exceed the 1 to 4 proportion. There were two common treatments to all trials, namely variety CB45-3 and Co997. The regular treatments included 37 RB varieties and 22 introduced varieties. There were three groups of experiments for the first cutting and two groups for the second cutting. Sugar yield (TPH) and sugar cane yield (TCH), in t/ha, were evaluated. In general, the statistical analysis showed that experiments, adjusted treatments and the interaction common treatments with experiments were statistically significant.

The variety CB45-3 showed an average yield of 12,97 for TPH and of 91,46 for TCH, in the first cutting trials. The same variety had average yields of 10,97 for TPH and of 70,36 for TCH, in the second cutting trials. The variety Co997 showed an average of 14,40 for TPH and of 85,54 for TCH, in the first cutting trials. The same variety had average yield of 12,53 for TPH and of 69,23 for TCH, in the second cutting trials. This confirm the trend of Co997 to be more productive than CB45-3 as far as sugar yield is concerned and of CB45-3 to be more productive than Co997 as far as sugar cane yield is concerned. The varieties Co1007, NA56-79, RB7075 and RB70103 had higher TPH and TCH yields than both common treatments. RB7138, RB7155 and RB7194 had higher TPH yield than both common treatments. RB7019, RB71156 and RB7286 had higher TPH yield than CB45-3. The varieties FAN66-35 and RB71156 had higher TCH yield than CB45-3. There was not any other variety with higher TPH than Co997. However, the varieties RB7019, RB7194, RB71156, RB71181, RB72523 and RB732628 had higher TCH yield than the variety Co997.

The varieties CB47-355, CP51-22, CP60-1 and RB70194 were not different from the two check varieties. The varieties RB7084, RB70100, RB70101, RB70106, RB70126, RB70141, RB70289, RB71191, RB72411 and PR1028 had smaller TPH and TCH yields than both check varieties.

The analysis of the data available shows that the genetic variability of sugar cane, already available in Pernambuco, would be more useful if the trials of each sugar cane microregion had the same varieties as entries. The RB varieties 7019, 7075, 7095, 70103, 70141, 70194, 7138, 7155, 71194, 71156, 7286 and the introduced varieties Co1007, NA56-79, CB47-355, CP51-22 and CP60-1 should be evaluated in more detailed experiments.

TITLE: Presença de Compostos Antracênicos em Folhas de *Cassia Fastuosa* Willd

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DATE: May 25th 1984

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LEVEL: Master

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ABSTRACT – Conveniently stabilized and stored leaves of *Cassia fastuosa* Wild., Leguminosae collected in 1973, were subjected to extraction methods of anthracenic compounds. Three aglicon (A, B and C) were detected in the ethereous extract and A and B sennoside in the ethanolic extract. Thin layer chromatography and melting point proved that A and C aglicon were aloemodin and emodin, respectively. Ultra-violet and infra-red absorption spectra showed the B aglicon as being a rhein. The Rf values in the thin layer chromatography of ethanolic extract resembled those of standard A and B sennoside. In quantitative determinations an yield of 2,48% in rhein and 4,8% in Sennoside B was obtained. Preliminary biological assay in 10% aqueous extract confirmed the laxative activity and no toxic effect was observed.

TITLE: *Podocarpus lambertii* Kl. Germination and Anatomy of Seed and Seedling

AUTHOR: Véra Lúcia Carvalho Siqueira

DATE: September 14th 1984

PLACE: Botany – UFRGS – Porto Alegre, RS

LEVEL: Master

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ABSTRACT – *Podocarpus lambertii* Kl., the "pinheiro-bravo" follows the distribution of *Araucaria angustifolia* (Bert.) O. Ktze., in the State Rio Grande do Sul, Brazil, but its dispersion in larger risen to Southeastern mountains. It is a Gymnospermae native with big economics potential by its timber and fibers and by ecological forest value in the region. However, it is poorly known, there are any records about anatomy and germination of the seed.

This paper deals with the physiology of seed germination and anatomy of the seed and seedling of *Podocarpus lambertii*.

The storage of the seeds decrease the germinability, but the scarification of the seed increases the germination. The seed has only one tegument showing vascular tissue and lipids are the mainly reserve in the gametophyte. The seedling shows a diarch root and in the endoderm the Caspary strips are well developed, sometimes they ramified. The cortex can show some cells with these branching Caspary strips. The cotyledons are two and they have two vascular bundles but no resin canals. The leaves show only one vascular bundle and in this case attend by one resin canal.

TITLE: Contribuição ao Conhecimento das Diatomáceas (Bacillariophyceae) no Plâncton Estuarino do Rio Itiberê, Município de Paranaguá, Estado do Paraná, Brasil

AUTHOR: Raul José Millen de Oliveira

DATE: September 14th 1984

PLACE: Botany Dept. – UFPR – Curitiba, PR

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 Carlos E. M. Bicudo – IBSP.
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ABSTRACT – It was made a survey on the Diatoms of the Itiberê river estuary, that bathes Paranaguá City, in the State of Paraná, Brazil, to estimate the situation of the estuarine aquatic environments, and to study the planktonic Diatoms in those environments of that State, in order to supply elements for the knowledge of this part of the planktonic florule. The work lasted from April 1980 to June 1981, with monthly collections, one in the morning and another in the evening. The work consisted

of plankton collection with its proper microplankton net, measure and establishment of some mesologic variables: temperature, pH, salinity, flow velocity, pluviosity, transparence and tides. The material was mounted on slides and identified after fixed and partially oxidated. We recognized 132 taxa of infra-generic level and only 12 of generic level, the total distributed into 21 families and 61 genera. From 132 specific and infra-specific taxa, 38 were new citations of the Diatoms florule of the Paraná State. The best represented families, in number of infra-generic taxa, were NAVICULACEAE and COSCINODISCACEAE and, according to the same parameter, the best representative genera were *Navicula*, *Coscinodiscus* and *Nitzschia*. We observed that the mesologic conditions, separately analysed, didn't constitute themselves limitant factors to the diversity in the different collection stations. We then raised the diversity grade in the different collection months, observing that two larger periods of diversity occurred, one in September and October/1980 and another in January and February/1981. At last we listed the best representative infra-generic taxa in the different collection stations and we also listed the taxa which consisted new contributions to the knowledge of the Paraná State Diatoms florule.

TITLE: "Interpretação Morfológica de *Anacheilium faustum* (Richb. f. ex. Cogn.) Pabst, Moutinho & Pinto"

AUTHOR: Francisco das Chagas e Silva

DATE: November 30th 1984

PLACE: Botany - UFPR - Curitiba, PR

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ABSTRACT - This study is a morfologi interpretation of *Anacheilium faustum* (Orchidaceae) of the *Encyclia glutimacea* group according to DUNGS & PABST. The interpretation was made over all the organs of the plant and covering its complete biologic cycle. The methodology included three procedures: 1 - Direct observation of the plant material in the field and in laboratory; 2 - Dissections and 3 - microtechnique. During the study various problems dealing with nomenclature were raised and analysed, particularly those concerning the term: pseudobulb. Among other conclusions of the study, a new classification of the bulb of the family Orchidaceae is proposed.

TITLE: "Desmídias (Zygnemaphyceae) Planctônicas do Parque Regional do Iguaçu, Curitiba, Estado do Paraná, Brasil"

AUTHOR: Maria Marcina Picelli Vicentim

DATE: December 7th 1984

PLACE: Botany - UFPR - Curitiba, PR

LEVEL: Master

EXAMINER BOARD: Carlos E.M. Bicudo (Adviser) - IBSP
Ita Moema V. Moreira - UFPR
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ABSTRACT - A taxonomic survey of the desmids (Zygnemaphyceae) of 3 lakes in the Parque Regional do Iguaçu, located in the city of Curitiba, Paraná State, Brazil, was carried out on the basis of analysis of 75 samples gathered monthly from 5 stations during the period of January 1982 to March 1983.

114 taxa were identified and classified into 3 genera of the Family Mesotaeniaceae and 14 of the Desmidiaceae. They comprised a total of 102 species, 34 varieties which are not typical for their species, and 7 taxonomic formae which are also not typical. 109 out of the 114 taxa surveyed constitute new citations for the State of Paraná.

Cosmarium with 32 taxa, *Closterium* with 20, and *Staurastrum* with 18 were the genera best represented were: *Actinotaenium*, *Cosmocladium*, *Cylindrocystis*, *Gonatozygon*, *Onychonema*, *Penium*, and *Teilingia*, each with a single taxon.

The greatest number of taxa (84) was observed at station 1, the smallest (47) at station 5. 5 taxa occurred during the entire period of study, but 27 in just one month. In all months desmids occurred in variable but considerable amounts. However, the greatest number of taxa occurred in January 1982, and the smallest in July of that same year.

One species and 2 varieties of *Cosmarium*, and one species of *Staurastrum* are here suggested as new to Science.

Maximum and minimum taxonomic similarities were calculated by means of the Jaccard Index, and occurred when the florulas were compared among themselves, respectively, at the 3 stations at the largest lake of the 3, and at those of the 3 lakes individually.

All taxa were identified on the basis of their classical morphological features and, whenever possible, also by the use of population samples, on account of the relatively frequent polymorphism in the group.

For each taxon identified the following information is provided: detailed description and measurements based on material studied, list of materials examined, geographical distribution within the State of Paraná, all illustrations necessary to demonstrate the morphological variation found within the population sample, and, whenever needed, the basonym and comments.

Taxonomical problems met with during the survey are raised as follows: 1) morphological expressions were observed in 26 taxa, but in no case with taxonomic implications; 2) cell measurements were taken, which enlarged significantly the maximum and/or minimum limits usually cited in the literature for 70 taxa, but again with no taxonomic implications; 3) overlapping of diacritic characteristics between the following taxa: *Closterium ehrenbergii* Men. var. *ehrenbergii* and *Closterium ehrenbergii* Men. var. *immane* Woole, *Closterium tortum* Griff. and *Closterium acutum* (Lyngh.) Bréb. var. *variabile* (Lemm.) Grieg., *Closterium tumidum* Johns. var. *tumidum* and *Closterium arcuarium* Hugh. var. *brevius* Presc.; 4) taxa separated by means of characteristic whose taxonomic value is poorly defined, such as the lateral margins undulations in *Pleurotaenium subalternans* Borge, and the radiation in *Staurastrum tetracerum* (Kütz.) Ralfs var. *tetracerum* f. *tetracerum* and *Staurastrum tetracerum* (Kütz.) Ralfs var. *tetracerum* f. *trigona* Lund.

Gathering of samples during 15 consecutive months demonstrated non-homogeneity of the qualitative distribution of the flora along the time-scale, in such a way that isolated collections were never representative of the community.

13 artificial identified keys – one for the identification of the families, one for the genera within each of the 2 families, and 10 for the species within each genus containing more than one taxon – and 171 illustrations (one map, 8 photographs, and 14 plates of line drawings) complement the text.

TITLE: Vegetation and Flora of São Francisco River Delta, Alagoas

AUTHOR: Rosário de Fátima de Almeida Rocha

DATE: December 18th 1984

PLACE: Botany – UFRPe, Pe

LEVEL: Master

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RÉSUMÉ – La composition de la flore et la structure de la végétation de la région du Delta du Fleuve São Francisco ont été étudiées dans une superficie de 180km² environ, comprise entre les parallèles 10°18'S et 10°30'S et les méridiens 36°17'W et 36°29'W, dans la commune de Piaçabuçu, Etat de l'Alagoas, Brésil, pendant la période allant de mars 1982 à Mai 1983. Par l'utilisation de photographies aériennes, 27 unités géomorphologiques ont été identifiées, parmi lesquelles 14 ont été sélectionnées pour études: lagunes intradunaires, lagunes intercordons, transgressions dunaires sur des rivages fluviaux, transgressions dunaires sur cordons du littoral, dunes frontales, dunes moyennes, dunes élevées, dunes semi-fixes, dunes fixes, depression interdunaires, plages, cordons littoraux anciens, depressions intercordons et zones de déflation. Les échantillons sont du type stratifié-aléatoire, d'un total de 339.278 espèces ont été identifiées, réparties en 89 familles. Les unités qui présentent le plus grand nombre d'espèces sont les cordons littoraux anciens avec 155 espèces et les dunes fixes avec 103 espèces. D'un autre côté, il existe des unités comme la plage et les dunes frontales avec a peine 5 et 10 espèces respectivement. Les autres unités géomorphologiques présentent un nombre d'espèces inter-

médiaire entre les extrêmes mentionnés. Il a été observé une prédominance de strates herbacées dans 9 des unités géomorphologiques, et de ligneux dans les unités restantes. Les ambiances des unités géomorphologiques étudiées ont été décrites au vu des données du milieu physique obtenues sur la fiche de levéé phytoécologie appliquée.

TITLE: Nutrient Content in Leaves of Eight Fruit Tree Species of Mata Zone, Pernambuco, Brazil

AUTHOR: Júlio Zoé de Brito

DATE: May 20th 1985

PLACE: Botany – UFRPe, Pe

LEVEL: Master

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ABSTRACT – Leaves of mango trees (*Mangifera indica* L.), avocado trees (*Persea americana* Mill.), guava trees (*Psidium guajava* L.), sapodilla trees (*Manilkara sapodilla* Jacq.) Gilly cashew trees (*Anacardium occidentale* L.), jack trees (*Arthocarpus heterophyllus* L.), soursop trees (*Annona muricata* L.) and Surinam cherry trees (*Eugenia pitanga* L.) were collected in October 1983, from orchards in the coastal humid area of Pernambuco, to study their mineral composition. Orchards which included the highest number of these species were previously selected. The collected leaves were physiologically mature, with no pathological sign and located all around the canopies of adult trees. Each tree was considered as a replicate and each orchard had at least two and at the most six replicates. The leaves were rinsed in distilled water, oven dried, ground, digested and analysed for their N, P, K, Ca, Mg, Fe, Zn, Cu and Mn content. Soil samples (0-30cm in depth) were collected in each orchard, simultaneously with the leaf samples, for physical and chemical analysis.

In general, there were differences among orchards in the mineral composition of each species. The average N contents varied from 1,63% (mango trees) to 2,54% (soursop trees) and were higher than those reported for other places while the average K contents (0,63% in sapodilla trees to 1,41% in jack trees) and Fe contents (56 ppm in soursop trees to 96 ppm in sapodilla trees) were lower than those in other places. Cashew tree leaves in all orchards had very low Ca (0,28% and Mg (0,21%) contents while sapodilla tree leaves had low Zn content (8 ppm). The average Ca contents in other species varied from 1,10% (guava trees) to 1,70% (Surinam cherry trees), Mg contents varied from 0,33% (jack trees) to 0,52% (sapodilla trees) and Zn contents varied from 13 ppm (jack trees) to 32 ppm (Surinam cherry trees). Mn content varied from 23 ppm (Surinam cherry trees) to 175 ppm (mango trees) but variations among orchards were much greater than among species. In mango trees, Mn content varied from 28 to 810 ppm and in avocado trees from 18 to 524 ppm. The P (0,09% in sapodilla trees to 0,19% in Surinam cherry trees) and Cu contents (5 ppm in jack trees to 13 ppm in guava trees) were, in general, similar to those found in other places. The avocado plants in one place (Itapirema) were probably Mn deficient since 4 out of 6 plants had Mn contents below 11 ppm.

High leaf Mn contents were related to high soil Mn contents; there was no clear relation between leaf and soil Mg, Fe, Zn and Cu contents, while P, K and Ca contents in leaves had no relation to soil contents.

TITLE: Taxonomy and Chemical Aspects of Gigartinales Species (Rhodophyta) in Jaguaribe Beach, Itamaracá-PE

AUTHOR: Élica Amara Cecília Guedes

DATE: June 14th 1985

PLACE: Botany – UFRPe, Pe

LEVEL: Master

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ABSTRACT – Investigations were made at Jaguaribe Beach (Itamaracá), North of Pernambuco State, from november 1981 to november 1982 concerning to the taxonomy, seasonal variation in the content of moisture, ash, protein, fat, crude fibre, mineral elements and phycocolloids of *Gracilaria debilis* (Forsskal) Boergesen, *Gracilaria sjoestedtii* Kylin, *Solieria tenera* (J. Agardh) Wynne and Taylor and *Hypnea musciformis* (Wulfen) Lamouroux. In this work were also discussed the yield and physical properties of agar-agar in two *Gracilaria* species and the yield of carrageenan in *Solieria tenera* and *Hypnea musciformis*. Cystocarpic plants were observed in *Gracilaria debilis* and *G. sjoestedtii*. The moisture content in the studied species varied from 62% to 84%; the ash from 6,03% to 18,75%; the protein from 3,85% to 12,67%; the fat acids from 0,40% to 1,79% and the crude fibre 0,92% to 9,51%. The highest values of Nitrogen (2,03%), Chloride (6,03%), Sulphur (4,08%), Calcium (5,20%), Copper (18,8%), Iron (6.455,8 ppm), Manganese (176,6 ppm) were detected in *Solieria tenera* and Phosphorus (0,29%), Iodine (0,023%), Boron 520,0 ppm), Zinc (209,8 ppm) in *Hypnea musciformis*. By the other hand, Magnesium (1,23%) and Sodium (1,23%) were highest in *G. sjoestedtii* and Potassium (1,90%) in *G. debilis*. The best yield of agar-agar and carrageenan were found in *G. sjoestedtii* (64,04%) and *Hypnea musciformis* (40,04%), respectively. The gel strength were highest in *G. debilis* and in relation to the gelation temperature and melting temperature, the majority of the samples were according to the Brazilian and American Pharmacopeia.

TITLE: “Composição Florística e Estrutura da Mata com Araucaria na Estação Ecológica de Araucuri, Esmeralda, RS”

AUTHOR: João André Jarenkow

DATE: June 14th 1985

PLACE: Botânica – UFRGS – Porto Alegre, RS

LEVEL: Master in Botany

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ABSTRACT – The floristic composition and structure of the tree and shrub components are analysed through a phytosociological survey. The area surveyed is covered with *Araucaria* forest and is located in the Estação Ecológica de Araucuri (28°13'S, 51°10'W, 900m average altitude), Esmeralda, Rio Grande do Sul. Evenly-spaced transect strips were used in sampling. Each transect strip had sampling units of two sizes superimposed on it: 160m² per trees; 40m² for shrubs. The phytosociological parameters of absolute and relative density, absolute and relative frequency, relative dominance and importance value index (IVI) were calculated for both sampling methods. Diversity index and stratification of individuals were also determined and for the commonest species DBH measurements were used to analyse the diameter classes. Sampling sufficiency was reached with 30 sampling units for the trees and 40 for the shrubs. Fifty-four species belonging to 46 genera and 28 families were found in the total survey. In the arboreal component *Sebastiania klotzschiana* shows the highest IVI (40.39), as well as the highest absolute density (125.0 individuals per ha), followed by *Araucaria angustifolia* with the second highest IVI (37.06). In the shrubby component, *Brunfelsia cuneifolia* and *Sebastiania brasiliensis*, respectively, showed highest values for all parameters used, greatly exceeding the other species. The Shannon & Wiener diversity index was estimated in 2.93 nat/individual for the arboreal component. Stratification is not very well defined but one shrubby and three discontinuous arboreal strata were detected three discontinuous arboreal strata and one shrubby stratum. Analysis of diameter classes of the most frequent species showed the expected distribution, that is, a large number of individuals in the lower classes that diminishes as diameters increase.

TITLE: “Cyanophyceae (Nostocophyceae) Planctônicas da Lagoa de Tramandaí e da Lagoa do Armazén, RS, Brasil: Contribuição Taxonomía”

AUTHOR: Vera Regina Werner

DATE: June 24th 1985

PLACE: Botânica – UFRGS – Porto Alegre, RS

LEVEL: Master of Botany

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ABSTRACT – This paper aims to survey the planktonic Cyanophyceae (=Nostocophyceae) of the Lagoa de Tramandaí and Lagoa do Armazém in the southern State of Rio Grande do Sul, thus contributing to knowledge of Brazilian algal flora. Monthly collections were made during 24 months, from August 1976 to July 1978 in 3 different stations, 2 of them being located at the Lagoa de Tramandaí and 1 at the Lagoa do Armazém. 20 infrageneric taxa were identified corresponding to 11 genera and 4 families. Among the taxa identified, 2 were cited for the first time for Brazil and 3 for the State of the Rio Grande do Sul. For each taxon identified a detailed description is presented, which is followed by illustrations, measurements, a list of the material examined, its geographical distribution in Brazil, comments, and, when needed, the respective basionym. An artificial key was prepared for the identification of the families, genera, species varieties and forms studied.

Chroococccaceae, *Merismopedia* and *Oscillatoria* respectively were the family and the genera containing the highest numbers of taxa identified. *Oscillatoria ornata* Kützing ex Gomont var. *ornata* f. *ornata* was the alga present in the largest number of samples gathered. *Oscillatoria limosa* C. Agardh ex Gomont var. *limosa* f. *limosa* and *Oscillatoria meslinii* Frémy were, on the contrary, the taxa represented by the smallest number of individuals during the whole period of study. *Gomphosphaeria aponina* Kützing var. *aponina* f. *aponina* showed the highest frequency of occurrence among all taxa studied; it was present during 21 out of the 24 months of collection. In the samples of December 1977 and March 1978 there occurred the highest variation in the number of taxa present, 12 of them being identified in the sum of all 3 collecting stations. The highest absolute number of taxa identified occurred at station A in October 1976, December 1976, December 1977 and March 1978. There occurred a bloom of *Anabaena circinalis* Rabenhorst ex Bornet & Flahault var. *circinalis* f. *circinalis* at station A in October 1976, when relatively extensive greenish spots were found on the water surface. The taxonomic identification of some taxa was somewhat difficult to carry out due to the simultaneous presence of different morphological expressions of the variation range of one single taxon. Studies based on unialgal cultures of *Anabaena circinalis* Rabenhorst ex Bornet & Flahault var. *circinalis* f. *circinalis* and *Microcystis aeruginosa* Kützing var. *aeruginosa* f. *aeruginosa* were suggested since they would contribute significantly to a better delimitation of each of the two taxa.

39 illustrations distributed in 8 plates, one of them show the map with the collecting stations, and the other, the taxa identified, a table containing the data concerning the presence of all identified taxa and their respective periods of occurrence, and a remissive index of the taxa cited complement the text.

TITLE: "Crescimento e Desenvolvimento de *Araucaria angustifolia* (Bert.) O. Ktze.

AUTHOR: Elci Terezinha Henz Franco

DATE: July 5th 1985

PLACE: Botânica – UFRGS – Porto Alegre, RS

LEVEL: Master

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ABSTRACT – The *Araucaria angustifolia* is a species of great beauty and economic potential specially for the South Region of Brazil, and for this reason this species has been widely studied.

This work aims at evaluating the initial growth and development of *Araucaria*, as well checking the behaviour of the plants originated from scarified seeds and intact cultivated in soils of fields and woods, through the analysis of the vegetative part.

In order to mount the experiment, intact and scarified seeds were used. These were cultivated during 7 months in natural environment.

The seeds were planted in the last week in May. Monthly evaluations were started three months later. The following parameters were considered: fresh and dry weights of the gametophyte; fresh and dry weights of the root; root length; fresh and dry weights of the shoot; number of leaves; height of stem and foliar area.

After analysing the results using the different parameters above, the conclusions were the following:
 1 - scarified seeds differed significantly from intact seeds concerning germination and germinability rates, number of leaves, foliar area, dry weight and height of the shoot;
 2 - plants originated from intact seeds grew larger roots and had a higher relative growth rate, a higher net assimilation rate, and heavier weight of the shoot;
 3 - plants cultivated in woods soil developed better than those cultivated in the field soil not only the plants originated from intact seeds, but also those originated from scarified seeds.

TITLE: Flavonóides em *Eupatorium Littorale* Cabrera

AUTHOR: Mayumi Eliza Otsuka Sato

DATE: July 5th 1985

PLACE: Botany - UFPR - Curitiba, PR

LEVEL: Master

EXAMINER BOARD: Eduardo A. Moreira (Adviser) UFPR.
 Ivone Popinigis - UEPG.
 Carlos Cecy - UFPR.

ABSTRACT - Preliminary phytochemical assays of aerial parts of *Eupatorium littorale* Cabrera revealed the presence of flavonoids. The identification was accomplished by means of analytical thin-layer chromatography (TLC) and its isolation and purification by means of preparative TLC and column chromatography. The presence of rutin in column chromatographical fractions 1.501-4.000 with eluents chloroform: methanol 1:1, was confirmed later by analytical TLC, melting point and U.V. absorption spectrometry. TLC and melting point of hydrolysed sample identified the aglicon as being a quercetin; rutin sugar components were identified as glucose and rhamnose by means of analytical TLC. The isolated flavonoid is probably the quercetin 3-rutinoside.

TITLE: Taxonomy Study of Lauraceae Lindley in Pernambuco State-Brazil

AUTHOR: Roxana Cardoso Barreto

DATE: August 5th 1985

PLACE: Botany - UFRPe - Recife, Pe

LEVEL: Master

EXAMINER BOARD: Sônia M. B. Pereira (Adviser) - UFRPE
 Laíse H. Cavalcanti Andrade - UFPE
 Enide E. Leça - UFPE

ABSTRACT - Taxonomic studies about the family Lauraceae Lindl. were made in the State of Pernambuco. Collects were realized in diverse areas, including all phytogeographic zones of that State, during the period from January 1982 to January 1984. Eighteen species from six genera were identified and among them *Nectandra cuspidata* Nees et Mart. ex Nees, *N. myriantha* Meissn., *Ocotea laxiflora* (Meissn.) Mez, *O. aff. lucida* (Meissn.) Vatt., *O. opifera* (Nees) Mart. and *Persea caesia* Meissn. are reported by the first time to the Northeast of Brazil and, besides, *Cinnamomum chana* Vatt., *Ocotea brachybotrya* (Meissn.) Mez, *O. bracteosa* (Meissn.) Mez, *O. duartei* Vatt., *O. limae* Vatt. and *O. pallida* (Meissn.) Mez to the State of Pernambuco. The keys to the genera and species of the family were elaborated. The descriptions of the species studied as well as their illustrations and explanations about the morphology, fenology and geographic distribution are reported in this paper. The expressions hypanthium and vestigial stamens nectaries were considered as the most adapted to the morphology of the family. The genus *Ocotea* Aubl. was found to have the greatest representation in the State of Pernambuco. The components of the family Lauraceae were registered in the following zones: littoral zone (*Cassytha filiformis* L. and *Ocotea gardneri* (Meissn.) Mez), forest zone (*Cinnamomum chana* Vatt., *Cryptocarya moschata* Nees et Mart. ex Nees, *Nectandra cuspidata* Nees et Mart. ex Nees, *N. myriantha* Meissn., *Ocotea brachybotrya* (Meissn.) Mez, *O. bracteosa* (Meissn.) Mez, *O. duckei*

Vatt., *O. gardneri* (Meissn.) Mez, *O. glomerata* (Nees) Mez, *O. laxiflora* (Meissn.) Mez, *O. limae* (Vatt., *O. aff. lucida* (Meissn.) Vatt., *O. opifera* (Nees) Mart., *O. sylvatica* (Meissn.) Mez and *Persea caesia* Meissn.) and savannah zone (*Ocotea gardneri* (Meissn.) Mez). In the "Chapada do Araripe", probably in areas of "carrasco", *O. duartei* Vatt., *O. duckei* Vatt. and *O. pallida* (Meissn.) Mez were found. *Cinnamomum chana* Vatt., *Ocotea duckei* Vatt., *O. gardneri* (Meissn.) Mez and *O. glomerata* (Nees) Mez presented a large distribution in the State while *Cryptocarya moschata* Nees et Mart. ex Nees (Pará), *Nectandra cuspidata* Nees et Mart. ex Nees (Pará, Ceará, São Paulo and Santa Catarina), *N. myriantha* Meissn. (Goiás), *Ocotea brachybotrya* (Meissn.) Mez (Pará and São Paulo), *Ocotea bracteosa* (Meissn.) Mez (Pará, Paraíba, Alagoas and Sergipe), *O. duckei* Vatt. (Paraíba, Sergipe, Bahia and Goiás), *O. gardneri* (Meissn.) Mez (Amazonas, Sergipe and Bahia), *O. glomerata* (Nees) Mez (Paraíba, Alagoas, Sergipe, Bahia, Minas Gerais, Goiás and Mato Grosso) and *O. opifera* (Nees) Mart. (Maranhão, Ceará, Alagoas, Bahia and Mato Grosso).

TITLE: Taxonomy Study of Loganiaceae of Pernambuco State

AUTHOR: Alda de Andrade Chiappeta

DATE: August 12th 1985

PLACE: Botany - UFRPE - Recife, Pe

LEVEL: Master

EXAMINER BOARD: Geraldo Mariz (Adviser) - UFPE
Laise H. Cavalcanti Andrade - UFPE
Enide E. Leça - UFPE

ABSTRACT - A taxonomic study of three genera and ten species of Loganiaceae from Pernambuco, Brazil, is presented. The species are distributed mostly in the Litoral and Forest and "Sertão" Zones: *Mitroclea petiolata* (J.F. Gmel.) Torr. et Gray, *Spigelia anthelmia* L., *Spigelia flemmingiana* Cham. et Schlecht., *Spigelia humboldtiana* Cham. et Schlecht., *Spigelia laurina* Cham. et Schlecht., *Strychnos atlantica* Kruk. et Barn., *Strychnos divaricans* Ducke, *Strychnos parvifolia* DC., *Strychnos rubiginosa* DC., *Strychnos trinervis* (Vell.) Mart. The list of examined material, is given together critical comments and analytical keys for genera and species. Considerations on economic importance, chemical and pharmacological studies and medicinal properties are included in the comments for each species. Three maps with the distribution of the species of each genus occurring in Pernambuco, and one indicating the collecting places are presented. Informations on the geographic distribution in Brazil and in the world, of the studied species are also included. *Spigelia laurina* is a first reference for Pernambuco and Alagoas States; a new reference for Pernambuco is also *Spigelia humboldtiana*.

TITLE: Composição Florística e Estrutura Fitossociológica da Floresta Tropical Ombrófila da Encosta Atlântica no Município de Morretes, Estado do Paraná

AUTHOR: Fernando Cardoso da Silva

DATE: August 15th 1985

PLACE: Botany - UFPR - CURITIBA, PR

LEVEL: Master

EXAMINER BOARD: Roberto M. Klein (Adviser) - UFSC.
Armando A. Almeida - UFPR.
Armando C. Cervi - UFPR

ABSTRACT - A phytosociological study of Atlantic hillside's "ombrofila" tropical forest (25°30'S latitude, 48°38'W longitude, 485m altitude), in the State Park Marumbi, Morretes, Paraná, south Brazil, from November 1983 till February 1985. The climate was classified as KOEPPEN'S Cfa. The samples were taken by "point-center quater method" (COTTAM & CURTIS, 1956). Only trees with diameter equal to or greater than 4.8cm were considered. In the 80 points (each as far 10m from the next), 70 species of trees (belonging to 55 genera and 31 families) were sampled. The vegetation structure analyses was based on density, frequency, dominance and importance value index (IVI) parameters. The most important families were Myrtaceae, Rubiaceae, Moraceae, Euphorbiaceae, Meliaceae and Nyctaginaceae. Density and frequency analysis shows some prominent species, the most im-

portant being *Guapira opposita*, *Mollinedia* sp. (2), *Hieronyma alchorneoides*, *Bathysa meridionalis*, *Psychotria sutuella* and *Alsophylla* sp. *Ficus organensis*, *Guapira opposita*, *Hieronyma alchorneoides*, *Cabralea canjerana*, *Mollinedia* sp. (2) and *Bathysa meridionalis* are dominants. 28.6% of species sampled included 75.9% of all IVI values. The forest appears to be stratified into lower, middle and upper layers. The diameters were distributed into 5cm amplitude size classes. The vegetation of the study site was compared with those of other areas in Atlantic and *Aracauria* forests in terms of climate, species, genera and families composition, well as the most important species and phytomass.

TITLE: Rhamnaceae from Pernambuco State – Taxonomy Aspects

AUTHOR: Rita Baltazar de Lima

DATE: September 30th 1985

PLACE: Botany – UFRPe – Recife, Pe

LEVEL: Master

EXAMINER BOARD: Laíse H. Cavalcanti Andrade (Adviser) – UFPE
Enide E. Leça – UFPE
José L. H. Alves – UFPE

ABSTRACT – Taxonomical survey of the family Rhamnaceae A.L. of Jussieu in the State of Pernambuco-Brazil by morphologic analysis of the collected material during trips made between 1982-1983, from the botanical material available in the local herbarium and from other Institutes of the country. In order to identify the Species, the collected data were compared to those contained in the diagnosis or in typus, concerning dimension, shape, consistence, and pilosity of the reproductive and vegetative organs. In Pernambuco, the family is represented so far by 6 genera and 13 species: *Abvimiantha tricamerata* Grey-Wilson, *Colubrina cordifolia** Reissek, *C. glandulosa* Perkins var. *reizii* (M.C. Johnston) M.C. Johnston, *Crumenaria decumbens** Martius, *Gouania blanchetiana* Miquel, *G. lupuloides* (L.) Urban, *G. virgata** Reissek, *Rhamnidium elaeocarpum** Reissek, *R. molle** Reissek, *Ziziphus cotinifolia** Reissek, *Z. joazeiro* Martius, *Z. platyphylla** Reissek and *Z. undulata** Reissek. The 8 species marked with asterisks make up new references for Pernambuco. *Colubrina rufa* Reissek and *Gouania polygama* (Jacquin) Urban, which were already mentioned as existing in Pernambuco, had their epithets changed to *Colubrina glandulosa* Perkins var. *reizii* (M.C. Johnston) M.C. Johnston and *Gouania lupuloides* (L.) Urban, respectively. The other species were only confirmed. Keys for separating genera and species, descriptions, areas of occurrence, commentaries and illustration are also presented. Some species of the genera which occur in Pernambuco are also new references for other Brazilian States.

TITLE: Selection Among and Within Half Sib Families in Dentado Composto Corn Variety for Resistance to *Spodoptera frugiperda* and *Heliothis zea*.

AUTOR: Cícero Eduardo Ramalho Neto

DATE: October 4th 1985

PLACE: Botany – UFRPe – Recife, Pe

LEVEL: Master

EXAMINER BOARD: Margarida A. Lemos (Adviser) – UFRPS
Mário A. Lira – UFRPE
José V. Oliveira – UFRPE

ABSTRACT – The main objective of this work is to obtain a Dentado Composto population resistant to fall armyworm (*S. frugiperda*) and corn earworm (*H. zea*), and more productive one.

It was used 363 half sib families and two checks, Dentado Composto original population and Central-mex variety.

The experiments were carried out at Vitória de Santo Antão and Caruaru, IPA stations (PE), during 1982/1983. Natural infestations were used in all trials and two scales note were utilized to evaluate the damage of the insects.

No pesticides were used in any experiments at all, and they were placed far from treated areas.

The 50 half sib families that presented the best performance for the three characters have concomitantly been selected and recombined at Vitória de Santo Antão, IPA station in 1983. These families exhibited higher yields and less fall army worm damage, however there was no progress to resistance corn earworm character.

The values of heritability, genetic variation coefficient and genetic response to fall armyworm damage were 3,7%, 2,27% and 0,7% respectively. These values for corn earworm damage were 22,99%, 9,41% and 7,18%, respectively, and to yield were 12,15%, 4,74% and 2,63%, respectively.

The selected families have shown a injury of fall armyworm and corn earworm reduction of 10,3% and 0,4%, respectively, while for yield it was found an increase of 18,1%.

The selected families for recombination were not the same that have shown low damage ratios and high productions. This justifies the differences among the character averages and the genetic response mainly for *H. zea* damage evaluation.

TITLE: Urticaceae of Pernambuco State – Taxonomic Study

AUTHOR: Valdelice Correia Lima

DATE: Outubro 7th 1985

PLACE: Botany – UFRPe – Recife, Pe

LEVEL: Master

EXAMINER BOARD: Laíse H. Cavalcanti Andrade (Adviser) – UFPE
Enide E. Leça – UFPE
Geraldo Mariz – UFPE

ABSTRACT – Following a trip route during 1982-1984, collection of material of Urticaceae family was made. Besides, herbarium and bibliographical survey were made. Based on specialized bibliography the genera was described and based on the recently collected material description of species was made. Exsiccatae from the several herbaria of Brazil were obtained, phototype and diagnosis wich were used to compare with the material from Pernambuco State. The differences are found debated within the commentary to every species. Until now there are 5 genera and 7 species recorded to Pernambuco State: *Ureia baccifera* (L.) Gaudich., *Ureia caracasana* (Jacq.) Gaudich. ex Griseb., *Pilea microphylla* (L.) Liebm., *Pilea hyalina* Fenzl, *Phenax sonneratii* (Poir.) Wedd., *Boehmeria cylindrica* (L.) Sw., *Laportea aestuans* (L.) Chew, being *Ureia caracasana*, *Pilea microphylla*, *Pilea hyalina*, *Phenax sonneratii* e *Boehmeria cylindrica* refered by the first time. Descriptions of the genera are presented followed by the geographical distribution and keys to species separation. The descriptions of the species are followed by they respective common names, geographical distribution, examined material, comments and illustrations.

TITLE: Óleo Essencial de Folhas de *Nectandra Grandiflora* Nees et. Mart. ex Nees.

AUTHOR: Adriano Bidá

DATE: October 29th 1985

PLACE: Botany – UFPR – Curitiba, PR

LEVEL: Master

EXAMINER BOARD: Eduardo A. Moreira (Adviser) – UFPR.
Armando C. Cervi – UFPR.
Carlos Cecy – UFPR.

ABSTRACT – A survey of the essential oil of leaves of *Nectandra grandiflora* Nees et Mart. ex Nees Lauraceae Lindl. was carried out. An average yield of 0.80% was obtained with extreme values of 0.70% in May 1982 and 0.93% in February of 1983 characterizing the seasonal variation.

Using techniques to evaluate the physico chemical constants of the essential oil the following results were obtained:

density, $D_{25}^{25} = 0.97764$; refractive index, $n_D^{25} = 1.51959$; rotating power, $[\alpha]_D^{25} = -55.591^0$, and solubility -2: 1, two parts of essential oil for one of 90% ethyl alcohol.

Thin layer chromatography (CCD) gave spots with $R_{F'S}$ characteristic of eugenol and other components.

Using gas chromatography (CG) the presence of eugenol was confirmed and α - β - γ -cariophyllenes were detected, but the retention time of each one is the same and is coincident with β -terpineol, for which reason it was not possible to definitely identify the superimposed components.

TITLE: Verificação da Sensibilidade Bacteriana aos Princípios Ativos de *Siphocampylus verticillatus* (Cham.) G. Don. Campanulaceae

AUTHOR: Janine Solange Buras

DATE: December 30th 1985

PLACE: Botany - UFPR - Curitiba, PR

LEVEL: Master

EXAMINER BOARD: Eduardo A. Moreira (Adviser) UFPR.

Geni F. Godoy - UFPR.

José M. M. Rocha - UFPR.

ABSTRACT - Bacterial sensibility of *Escherichia coli* (11 serumtypes), *Shigella flexneri*, *Shigella boydii*, *Shigella dysenteriae*, *Shigella sonnei*, *Salmonella typhimurium*, *Salmonella agona* e *Salmonella panama* was studied by means of KIRBY & BAUER and Minimum Inhibitory Concentration (MIC) methods, using extracts and active principles of *Siphocampylus verticillatus* (Cham.) G. Don leaves, stems and flowers. *Shigella flexneri* e *Shigella boydii* were inhibited by 25 μ g alkaloidal fraction. Toxicity essays on 13 solvents used for vegetable extracts and residues were made and all of them but one presented inhibitory effects on bacterial growth.