XN-ABG-173-A
68399
Appendix 1


NifTAL PROJECT and MIRCEN

College of Tropical Agriculture and Human Resources
Department of Agronomy and Soil Science
UNIVERSITY OF HAWAII
P.O. Box O, Paia, Hawaii 96779 U.S.A.


# CATALOGUE

# OF

# NITROGEN-FIXING TREE GERMPLASM


Jake Halliday



5th Edition (December, 1984)

Germplasm being assembled under grant

DAN-5542-G-SS-2094-00

UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT



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NITROGEN-FIXING TREES HELD AT NifTAL, HAWAII

| NFT # | SPECIES | SOURCE | COUNTRY | COLLECTION SITE | DATE | QUANTITY |
|---|---|---|---|---|---|---|
| 00150 | Acacia albida | NifTAL Project | USA | Shambat, Sudan | 6/24/80 | 7 seeds |
| 00155 | Acacia albida | U. of Khartoum | Sudan | Khartoum, Sudan | 6/24/80 | 1 g |
| 00101 | Acacia albida | Kew Gardens | UK | Ethiopia | 8/80 | sample |
| 00164 | Acacia aneura | Dept Primary Ind. | Australia | Charleville, Australia | 8/14/80 | 3 g |
| 00177 | Acacia angustissima | CSIRO | Australia | Lansdown, Australia | 10/23/80 | 5 g |
| 00554 | Acacia arabica | NifTAL Project | USA | | 7/83 | 25 g |
| 00349 | Acacia aulacocarpa | Dept of Forestry | Australia | Brisbane, Australia | 5/81 | 16 g |
| 00136 | Acacia auriculiformis | NifTAL Project | USA | Malaysia | | 10 g |
| 00178 | Acacia auriculiformis | U. of Malaysia | Malaysia | Kuala Lumpur, Malaysia | 10/30/80 | sample |
| 00190 | Acacia auriculiformis | Forest Res Int Bogor | Indonesia | L.P.H. Java, Indonesia | 11/80 | 5 g |
| 00306 | Acacia auriculiformis | USDA Florida | USA | | 2/81 | 10 g |
| 00365 | Acacia auriculiformis | For Res Inst | Nigeria | India | 8/81 | 297 g |
| 00548 | Acacia auriculiformis | Nat Bot Res Inst | India | Lucknow,India | 6/83 | 13 seeds |
| 00507 | Acacia berlandieri | Nat. Academy Science | USA | McMullen Cnty, Texas USA | 11/82 | sample |
| 00348 | Acacia cincinnata | Dept of Forestry | Australia | Brisbane, Australia | 5/81 | 18 g |
| 00562 | Acacia confusa | NifTAL Project | USA | Wailuku, Maui, Hawaii | 7/83 | 56 g |
| 00345 | Acacia confusa | NifTAL Project | USA | Hilo, Hawaii | 7/81 | sample |
| 00579 | Acacia confusa | NifTAL Project | USA | Hana, Maiu, Hawaii | 10/83 | sample |
| 00310 | Acacia cowleana | Dept Primary Product | Australia | Alice Springs, Australia | 2/81 | 1 kg |
| 00176 | Acacia currasavica | CSIRO | Australia | Lansdown, Australia | 10/23/80 | 30 g |
| 00111 | Acacia cyanophylla | Land Dev Auth | Israel | Kiryat Hayim, Israel | 9/80 | 200 g |
| 00340 | Acacia cyanophylla | L.A. State/Cty Arbor | USA | Los Angeles, Calif. | 3/81 | sample |
| 00351 | Acacia erioloba | Matapos Res Stn. | Zimbabwe | Bulawayo, Zimbabwe | 7/81 | sample |
| 00504 | Acacia farnesiana | Nat. Academy Science | USA | CSIRO N.S.W. Australia | 11/82 | sample |
| 00547 | Acacia farnesiana | Nat Bot Res Inst | India | Lucknow, India | 6/83 | 2 g |
| 00571 | Acacia farnesiana | Forest Res. Inst. | Philippines | Bicutan, Philippines | 9/83 | 20 g |
| 00576 | Acacia farnesiana | NifTAL Project | USA | Ulupalakua,Maui,Hawaii | 9/83 | 14 g |
| 00585 | Acacia farnesiana | NifTAL Project | USA | Makena, Maui, Hawaii | 1/84 | 48 g |
| 00106 | Acacia holosericea | Dept Foresty | Australia | Brisbane, Australia | 3/81 | 13 g |
| 00352 | Acacia holosericea | Inst P.P. | Malaysia | Kepong, Malaysia | 6/81 | sample |
| 00143 | Acacia karroo | Nat Bot Gardens | S.Africa | South Africa | 6/16/80 | 1 g |
| 00305 | Acacia karroo | U. of Zimbabwe | Zimbabwe | Salisbury, Zimbabwe | 2/81 | sample |
| 00160 | Acacia koa | NifTAL Project | USA | Kula, Maui, Hawaii | 8/80 | 5 g |
| 00564 | Acacia koa | NifTAL Project | USA | Kula, Maui, Hawaii | 7/83 | 22 g |
| 00153 | Acacia laeta | U. of Khartoum | Sudan | Khartoum, Sudan | 6/24/80 | 10 g |
| 00510 | Acacia linarioides | Nat. Academy Science | USA | CSIRO W. Australia | 11/82 | 8 g |
| 00311 | Acacia ligulata | Dept Primary Product | Australia | Alice Springs, Australia | 2/81 | 1 kg |
| 00171 | Acacia mangium | North Borneo Timbers | Malaysia | Brumas, Sabah, Malaysia | 10/14/80 | sample |
| 00179 | Acacia mangium | U. of Malaysia | Malaysia | Sook Forest Res. Malaysia | 10/30/80 | sample |
| 00184 | Acacia mangium | Dept of Forestry | Australia | Brisbane, Q'land, Aust. | 11/80 | 15 g |
| 00527 | Acacia mangium | BioEnergy Dev Corp | Hawaii USA | N. Qnld, Australia | 4/83 | sample |
| 00528 | Acacia mangium | BioEnergy Dev Corp | Hawaii USA | N. Qnld, Australia | 4/83 | sample |
| 00163 | Acacia mearnsii | NifTAL Project | USA | Olinda, Maui Hawaii | 8/11/80 | sample |
| 00583 | Acacia mearnsii | NifTAL Project | USA | Kula, Maui, Hawaii | 11/83 | 17 g |
| 00584 | Acacia mearnsii | NifTAL Project | USA | Kula, Maui, Hawaii | 11/83 | 14 g |
| 00701 | Acacia mearnsii | NifTAL Project | USA | Olinda, Maui Hawaii | 9/84 | 90 g |
| 00521 | Acacia melanoxylon | BioEnergy Dev Corp | USA | Australia | 1/83 | 93 g |
| 00152 | Acacia mellifera | U. of Khartoum | Sudan | Khartoum, Sudan | 6/80 | 15 g |
| 00509 | Acacia nilotica | Nat. Academy Science | USA | ISRA/CNRF Bondia Senegal | 11/82 | 7 g |
| 00551 | Acacia nilotica | Nat Bot Res Inst | India | Lucknow, India | 6/83 | 2 g |

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| NFT # | SPECIES | SOURCE | COUNTRY | COLLECTION SITE | DATE | QUANTITY |
|---|---|---|---|---|---|---|
| 00513 | Acacia nilotica var. tomentosa | Nat. Academy Science | USA | ISRA/CNRF Nayobe Senegal | 11/82 | sample |
| 00103 | Acacia nilotica var. tomentosa | Punjab Ag. U. | India | Ludhiana, Punjab India | 10/23/80 | 15 g |
| 00154 | Acacia nubica | U. of Khartoum | Sudan | Khartoum, Sudan | 6/24/80 | 10 g |
| 00511 | Acacia raddiana | Nat. Academy Science | USA | ISRA/CNRF Nayobe Senegal | 11/82 | sample |
| 00592 | Acacia saligna | CSIRO | Australia | Wanneroo, West Australia | 4/84 | 10 g |
| 00555 | Acacia senegal | NifTAL Project | USA | | 7/83 | 9 g |
| 00501 | Acacia senegal | Nat. Academy Science | USA | ISRA/CNRF N.Ferlo Senegal | 11/82 | sample |
| 00157 | Acacia seyal var. seyal | U. of Khartoum | Sudan | Khartoum, Sudan | 6/24/80 | 5 g |
| 00142 | Acacia sieberiana var. Woodii | Nat Bot Gardens | S. Africa | South Africa | 6/16/80 | 1 g |
| 00174 | Acacia sp. | CSIRO | Australia | Red Earth Area, Australia | 10/23/80 | 10g |
| 00156 | Acacia tortilis ssp raddiana | U. of Khartoum | Sudan | Khartoum, Sudan | 6/24/80 | 5 g |
| 00307 | Acacia victoriae | Res. and Dev. | Israel | Beersheva, Israel | 2/81 | 32 g |
| 00578 | Acrocarpus fraxinifolius | | | Malawi | 1/81 | sample |
| 00384 | Adenanthera pavonina | Auroville | India | Auroville, T.N., India | 4/82 | 50 g |
| 00544 | Adenanthera pavonina | U. of Hawaii | USA | Ponape, Micronesia | 6/83 | 4 g |
| 00377 | Afzelia africana | CTFT | IvoryCoast | Sangoue, Ivory Coast | 9/81 | 500 g |
| 00359 | Afzelia clappertoniana (africana?) | For Res Inst | Nigeria | Ajogunle, Nigeria | 8/81 | 1 kg |
| 00333 | Albizia amara ssp. "amara" | USDA STHRU Florida | USA | | 3/81 | 5 g |
| 00341 | Albizia caribaea | Fairchild Trop Gard. | USA | Florida USA | 3/81 | 1 g |
| 00304 | Albizia chinensis | Lyon Arboretum | USA | Manoa, Hawaii | 2/81 | 5 g |
| 00338 | Albizia chinensis | Lyon Arboretum | USA | Manoa, Hawaii | 3/81 | 10g |
| 00126 | Albizia falcata | S.Reg. Plant Intr St | Ceylon | Ceylon | 4/80 | 2 g |
| 00170 | Albizia falcataria | North Borneo Timbers | Malaysia | Brumas, Sabah, Malaysia | 10/14/80 | 56 g |
| 00581 | Albizia falcataria | Perum Perhutani | Indonesia | Pare, Java Indonesia | 11/83 | 560 g |
| 00181 | Albizia falcataria | PICOP | Philippine | Bislig Surigao del Sur PI | 11/17/80 | 50 g |
| 00192 | Albizia falcataria | Forest Res Int Bogor | Indonesia | L.P.H. Java, Indonesia | 11/80 | 4 g |
| 00522 | Albizia falcataria | BioEnergy Dev Corp | USA | Sri Lanka | 1/83 | 88 g |
| 00523 | Albizia falcataria | BioEnergy Dev Corp | USA | Hawaii | 1/83 | 20 g |
| 00537 | Albizia falcataria | U. of Hawaii | USA | Hilo, Hawaii | 6/83 | 11 g |
| 00362 | Albizia ferruginea | For Res Inst | Nigeria | Frin H/Q Nigeria | 8/81 | 500 g |
| 00185 | Albizia julibrissin | Longwood Gardens | USA | Longwood Gardens, Pennsyl | 11/80 | sample |
| 00328 | Albizia lebbek | NifTAL Project | USA | Paia, Maui Hawaii | 3/81 | sample |
| 00563 | Albizia lebbek | NifTAL Project | USA | Lahaina, Maui, Hawaii | 7/83 | 12 g |
| 00381 | Albizia lebbek | BLSF CATIE | Costa Rica | Tanzania | 4/82 | 30 g |
| 00385 | Albizia lebbek | Auroville | India | Tamil Nadu, India | 4/82 | 37 g |
| 00386 | Albizia lebbek | Auroville | India | Parc de Hann, Senegal | 4/82 | 25 g |
| 00550 | Albizia lebbek | Nat Bot Res Inst | India | Lucknow, India | 6/83 | 30 seeds |
| 00558 | Albizia lebbek | NifTAL Project | USA | Lahaina, Maui, Hawaii | 7/83 | 73 g |
| 00332 | Albizia lebbekoides | USDA STHRU Florida | USA | | 3/81 | 5 g |
| 00180 | Albizia lophrantha | W.A.I.T. Bio Dept. | Australia | Perth, Australia | 10/30/80 | sample |
| 00182 | Albizia moluccana | Lyon Arboretum | USA | Manoa, Hawaii | 11/10/80 | 20 g |
| 00339 | Albizia polyphylla | L.A. State/Cty Arbor | USA | Los Angeles, Calif | 3/81 | 5 g |
| 00538 | Albizia procera | U. of Hawaii | USA | Fiji | 6/83 | 6 g |
| 00173 | Albizia sp. | CSIRO | Australia | Townsville, Australia | 10/23/80 | 10 g |
| 00140 | Albizia sumatrana | S Reg Plant Intro St | Ceylon | Ceylon | 4/80 | 2 g |
| 00596 | Alnus acuminata | CFI | U.K. | Zacualtipan Hidalgo Mexico | 6/84 | 100 g |
| 00372 | Alnus jorullensis | Forestry Dept. | Costa Rica | S.Duran,Cartago,CostaRica | 1/82 | 15 g |
| 00542 | Alnus nepalensis | U. of Hawaii | USA | | 6/83 | 1.8 g |
| 00318 | Bauhinia monandra | NifTAL Project | USA | Lahaina, Maui Hawaii | 2/81 | sample |
| 00559 | Bauhinia monandra | NifTAL Project | USA | Lahaina, Maui, Hawaii | 7/83 | 56 g |

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|---|---|---|---|---|---|---|
| 00389 | Bauhinia tomentosa | Auroville | India | Auroville, T.N., India | 4/82 | 40 g |
| 00196 | Brachystegia spiciformis | Forestry Res Inst | Malawi | Zomba Plateau, Malawi | 11/80 | sample |
| 00195 | Caesalpinia peltophoroides | CEPLAC | Brasil | Eunapolis, Brasil | 11/80 | 120 g |
| 00326 | Caesalpinia pulcherrima | NifTAL Project | USA | H'poko, Maui Hawaii | 2/81 | sample |
| 00198 | Caesalpinia velutina | Seed Export | Guatamala | Guatamala | 12/80 | 25 g |
| 00161 | Calliandra calothyrsus | Wageningen | Nederland | Java, Indonesia | 8/7/80 | 32 g |
| 00342 | Calliandra calothyrsus | LPH Bogor | Indonesia | Bogor, Indonesia | 5/81 | 10 g |
| 00375 | Calliandra calothyrsus | Tree Seeds Internatl | USA | | 12/81 | sample |
| 00590 | Calliandra calothyrsus | NifTAL Project | USA | HFS. Maui, Hawaii | 3/84 | 45 g |
| 00593 | Calliandra calothyrsus | NifTAL Project | USA | HFS Maui, Hawaii | 5/84 | 110 g |
| 00594 | Calliandra calothyrsus | NifTAL Project | USA | Haleakala Stn Maui Hawaii | 6/84 | 70 g |
| 00322 | Calliandra inaequilatera | NifTAL Project | USA | Makawao, Maui Hawaii | 2/81 | sample |
| 00356 | Calliandra sp. | NifTAL Project | USA | Keaau,Hawaii | 6/81 | sample |
| 00371 | Cassia bicapsularis | U. de Sao Paulo | Brasil | Sao Paulo, Brasil | 8/81 | sample |
| 00314 | Cassia glauca | NifTAL Project | USA | Kahuli, Maui Hawaii | 2/81 | sample |
| 00582 | Cassia glauca | NifTAL Project | USA | Kaupo, Maui, Hawaii | 11/83 | 3 g |
| 00191 | Cassia siamea | Forest Res Int Bogor | Indonesia | L.P.H. Java, Indonesia | 11/80 | 6 g |
| 00321 | Cassia siamea | NifTAL Project | USA | Puunene, Maui Hawaii | 2/81 | sample |
| 00354 | Cassia siamea | For. Industry Org. | Thailand | Bangkok, Thailand | 6/81 | sample |
| 00366 | Cassia siamea | For Res Inst | Nigeria | Umuahia, Nigeria | 8/81 | 200 g |
| 00390 | Cassia siamea | Auroville | India | Auroville, T.N. India | 4/82 | 25 g |
| 00391 | Cassia siamea | Auroville | India | Sindia, Senegal | 4/82 | 15 g |
| 00165 | Cassia sturtii | Dept Primary Ind. | Australia | Charleville, Australia | 8/14/80 | sample |
| 00308 | Cassia sturtii | Res and Dev. | Israel | Neginst, Israel | 2/81 | 50 g |
| 00545 | Casuarina cunninghamiana (C-13) | U. of Hawaii | USA | Florida, USA | 6/83 | 6 g |
| 00552 | Casuarina equisetifolia | Nat Bot Res Inst | India | Lucknow, India | 6/83 | 0.5 g |
| 00368 | Casuarina equistifolia | For Res Inst | Nigeria | Ogbomosho, Nigeria | 3/81 | 20 g |
| 00121 | Casuarina equistifolia | Subtrop Hort Res Stn | USA | Miami, Florida | 3/81 | 9 g |
| 00536 | Casuarina glauca | U. of Hawaii | USA | Florida, USA | 6/83 | 3 g |
| 00571 | Casuarina junghuhniana | CSIRO | Australia | Tanzania | 4/84 | 5 g |
| 00166 | Clitoria racemosa var. Bentham | U. Federal do Para | Brasil | Belem, Para, Brasil | 8/25/80 | 90 seeds |
| 00194 | Dalbergia nigra | CEPLAC | Brasil | Bahia, Brasil | 11/80 | 93 g |
| 00553 | Dalbergia sissoo | Nat Bot Res Inst | India | Lucknow, India | 6/83 | 20 seeds |
| 00324 | Delonix regia | NifTAL Project | USA | Paia, Maui, Hawaii | 12/83 | 29 g |
| 00392 | Delonix regia | Auroville | India | Auroville, T.N., India | 4/82 | 100 g |
| 00393 | Delonix regia | Auroville | India | Hann, Senegal | 4/82 | 40 g |
| 00539 | Delonix regia | U. of Hawaii | USA | San Felipe,Bacalar,Mexico | 6/83 | 47.5 g |
| 00175 | Desmanthus sp. | CSIRO | Australia | Lansdown, Australia | 10/23/80 | 5 g |
| 00526 | Dialium sp. | Stan Malaysian Rubr | Malaysia | Malaysia | 1/83 | 75 g |
| 00200 | Enterolobium cyclocarpum | Seed Export | Guatamala | Guatamala | 12/80 | 10 g |
| 00320 | Enterolobium cyclocarpum | NifTAL Project | USA | Puunene, Maui Hawaii | 5/81 | sample |
| 00541 | Enterolobium cyclocarpum | U. of Hawaii | USA | Honduras | 6/83 | 80 g |
| 00556 | Enterolobium cyclocarpum | NifTAL Project | USA | Haiku, Maui, Hawaii | 7/83 | 28 g |
| 00595 | Enterolobium cyclocarpum | NifTAL Project | USA | Haiku, Maui Hawaii | 6/84 | 80 g |
| 00597 | Enterolobium cyclocarpum | NifTAL Project | USA | Puunene, Maui Hawaii | 7/84 | 1.4 kg |
| 00598 | Erythrina sp. | NifTAL Project | USA | Kahului, Maui Hawaii | 7/84 | 41 g |
| 00380 | Erythrina costarisensis | BLSF CATIE | Costa Rica | Costa Rica | 4/82 | 20 g |
| 00315 | Erythrina crista galli | NifTAL Project | USA | Kahului, Maui Hawaii | 2/81 | sample |
| 00549 | Erythrina fusca | Nat Bot Res Inst | India | Lucknow, India | 6/83 | 9 seeds |
| 00379 | Erythrina lysistemon | BLSF CATIE | Costa Rica | S. Africa | | 15 g |

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| NFT # | SPECIES | SOURCE | COUNTRY | COLLECTION SITE | DATE | QUANTITY |
|---|---|---|---|---|---|---|
| 00378 | Erythrina poeppigiana | BLSF CATIE | Costa Rica | Turrialba, Costa Rica | 4/82 | 18 seeds |
| 00343 | Erythrina sandwicences | NifTAL Project | USA | Nuu Bay, Maui Hawaii | 7/81 | sample |
| 00346 | Erythrina sandwicences | NifTAL Project | USA | Kaupo, Maui Hawaii | 4/81 | sample |
| 00577 | Erythrina sandwicensis | NifTAL Project | USA | Pukalani,Maui,Hawaii | 10/83 | 18 g |
| 00589 | Erythrina variegata var. fastigiata | U.S. Soil Cons. Svc. | USA | PMC, Molokai, Hawaii | 4/84 | 100 g |
| 00319 | Erythrina variegata var. orientalis | NifTAL Project | USA | Kahului, Maui Hawaii | 2/81 | sample |
| 00573 | Erythrina variegata var. orientalis | NifTAL Project | USA | Kahului, Maui Hawaii | 9/83 | 41 g |
| 00574 | Erythrina variegata var. orientalis | NifTAL Project | USA | Kahului, Maui Hawaii | 9/83 | 65 g |
| 00518 | Gliricidia sepium | Lembaga Biol. Nat'l | Indonesia | Bogor, Indonesia | 12/82 | 50 g |
| 00565 | Gliricidia sepium | NifTAL Project | USA | Bogor, Indonesia | 12/82 | 205 g |
| 00566 | Gliricidia sepium | NifTAL Project | USA | Bogor, Indonesia | 12/82 | 104 g |
| 00567 | Gliricidia sepium | NifTAL Project | USA | Bogor, Indonesia | 12/82 | 210 g |
| 00568 | Gliricidia sepium | NifTAL Project | USA | Bogor,Indonesia | 12/82 | 176 g |
| 00127 | Julbernardia globiflora | U. of Zimbabwe | Zimbabwe | Salisbury, Zimbabwe | 2/81 | 50 seeds |
| 00141 | Leucaena diversifolia | U. of Hawaii | USA | Hawaii | 5/80 | 1 g |
| 00529 | Leucaena diversifolia | NifTAL Project | USA | Maui, Hawaii | 11/26/82 | 400 g |
| 00532 | Leucaena diversifolia (K-145) | NifTAL Project | USA | Maui, Hawaii | 11/82 | 950 g |
| 00530 | Leucaena diversifolia (K-156) | NifTAL Project | USA | Maui, Hawaii | 11/82 | 350 g |
| 00531 | Leucaena diversifolia (K-156) | NifTAL Project | USA | Maui, Hawaii | 10/82 | 1 kg |
| 00168 | Leucaena leucocephala | NifTAL Project | USA | Tanzania | 7/80 | 2 g |
| 00188 | Leucaena leucocephala | Forest Res Int Bogor | Indonesia | Lembaga Penelitan Java | 11/80 | 46 g |
| 00367 | Leucaena leucocephala | For Res Inst | Nigeria | Ijebu-oru, Nigeria | 8/81 | 657 g |
| 00569 | Leucaena leucocephala | NifTAL Project | USA | Pukalani Maui Hawaii | 8/83 | 90 g |
| 00586 | Leucaena leucocephala (K-8) | NifTAL Project | USA | H'poko, Maui, Hawaii | 2/84 | 126 g |
| 00373 | Leucaena leucocephala (K-67) | Tree Seeds Internatl | USA | | 12/81 | 10 g |
| 00197 | Lonchocarpus salvadorensis | Seed Export | Guatamala | Capoilliez, Guatamala | 12/80 | 15 g |
| 00301 | Lysiloma auritum | Seed Export | Guatamala | Guatamala | 12/80 | 3 g |
| 00370 | Mimosa scabrella | U. de Sao Paulo | Brasil | Lages, S. Catarina,Brasil | 8/81 | 18 g |
| 00520 | Mimosa scabrella | BioEnergy Dev Corp | USA | Costa Rica | 1/83 | 38 g |
| 00543 | Mimosa scabrella | U. of Hawaii | USA | | 6/83 | 10 g |
| 00376 | Parkia biglobosa | CTFT | IvoryCoast | Kouto, Ivory Coast | 9/81 | 335 g |
| 00358 | Parkia clappertoniana | For. Res Inst | Nigeria | Umudike, Nigeria | 8/81 | 1 kg |
| 00312 | Parkia pendula | CEPLAC-CEPEC | Brasil | Itabuna, Bahia, Brasil | 2/81 | 100 g |
| 00570 | Parkia roxburghii | F.O.R.I. | Philippines | UPLB Laguna Philippines | 9/83 | 63 g |
| 00149 | Parkinsonia aculeata | NifTAL Project | USA | Khartoum, Sudan | 6/24/80 | 7 seeds |
| 00512 | Parkinsonia aculeata | Nat. Academy Science | USA | ISRA/CNRF Bandia Senegal | 11/82 | sample |
| 00599 | Parkinsonia aculeata | Pecoff Bros Nursery/Seed | U.S.A. | | 7/84 | 460 g |
| 00396 | Peltophorum pterocarpum | Auroville | India | Auroville, T.N., India | 4/82 | 65 g |
| 00399 | Peltophorum pterocarpum | Auroville | India | Cambarene, Senegal | 4/82 | sample |
| 00316 | Peltophorum pterocarpum | NifTAL Project | USA | Puunene, Maui Hawaii | 2/81 | sample |
| 00561 | Peltophorum pterocarpum | NifTAL Project | USA | Wailuku, Maui, Hawaii | 7/83 | 3 g |
| 00580 | Peltophorum pterocarpum | NifTAL Project | USA | Nahiku, Maui Hawaii | 10/83 | sample |
| 00327 | Pithecellobium dulce | NifTAL Project | USA | H'poko,Maui Hawaii | 2/81 | sample |
| 00535 | Pithecellobium dulce | U. of Hawaii | USA | Nueva Ecija, Philippines | 6/83 | 18 g |
| 00575 | Pithecellobium dulce | NifTAL Project | USA | Olowalu, Maui, Hawaii | 9/83 | 35 g |
| 00186 | Pithecellobium niopoides | U. Federal do Para | Brasil | Belem, Para, Brasil | 11/80 | 99 seeds |
| 00313 | Pithecellobium pedicellare | CEPLAC-CEPEC | Brasil | Itabuna, Bahia, Brasil | 2/81 | 100 g |
| 00193 | Plathymenia foliosa | E.E.P. | Brasil | Brasil | 11/80 | 40 g |
| 00116 | Prosopis africana | U. of Cal, Riverside | USA | California, USA | 8/11/80 | 99 seeds |

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| NFT # | SPECIES | SOURCE | COUNTRY | COLLECTION SITE | DATE | QUANTITY |
|---|---|---|---|---|---|---|
| 00505 | Prosopis africana | Nat. Academy Science | USA | ISRA/CNRF Senegal | 11/82 | sample |
| 00515 | Prosopis alba | Nat. Academy Science | USA | Texas, USA | 11/82 | sample |
| 00516 | Prosopis alba | Nat. Academy Science | USA | Texas, USA | 11/82 | sample |
| 00514 | Prosopis glandulosa Var. glandulosa | Nat. Academy Science | USA | S. Texas, USA | 11/82 | sample |
| 00506 | Prosopis juliflora | Nat. Academy Science | USA | ISRA/CNRF Senegal | 11/82 | sample |
| 00540 | Prosopis juliflora | U. of Hawaii | USA | Sri Lanka | 6/83 | sample |
| 00117 | Prosopis tamarugo | U. of Cal, Riverside | USA | California, USA | 8/11/80 | sample |
| 00169 | Prosopis tamarugo var. Phil | CORFO | Chile | Chile | 9/80 | sample |
| 00517 | Prosopis velutina | Nat. Academy Science | USA | Kingsville, Texas, USA | 11/82 | sample |
| 00325 | Pterocarpus indicus | Hawaii State Foresty | USA | Keanae Arb. Maui Hawaii | 2/81 | sample |
| 00702 | Pterocarpus indicus | Ponape Ag & Trade School | Ponape, FSM | Ponape | 9/84 | sample |
| 00302 | Rossedendron Donel Smithii | Seed Export | Guatamala | Guatamala | 12/80 | 5 g |
| 00572 | Samanea saman | Forest Res. Inst. | Philippines | Cabagan,Isabela,Philippines | 9/83 | 86 g |
| 00587 | Samanea saman | NifTAL Project | USA | H'poko, Maui, Hawaii | 1/84 | 38 g |
| 00588 | Samanea saman | NifTAL Project | USA | H'poko, Maui, Hawaii | 2/84 | 34 g |
| 00187 | Schizolobium amazonicum | U. Federal do Para | Brasil | Belem, Para, Brasil | 11/80 | 50 seeds |
| 00144 | Schotia brachypetala | Nat Bot Gardens | S. Africa | South Africa | 6/16/80 | 5 seeds |
| 00546 | Sesbania arborea | NifTAL Project | USA | Waimanalo, Hawaii | 6/83 | sample |
| 00138 | Sesbania bispinosa | U. of Hawaii | USA | Hawaii | 5/80 | 4 g |
| 00137 | Sesbania cannabina | U. of Hawaii | USA | Hawaii | 5/80 | 5 g |
| 00167 | Sesbania formosa | CSIRO | Australia | Queensland, Australia | 8/25/80 | 100 g |
| 00303 | Sesbania grandiflora | NifTAL Project | USA | Kohala, Hawaii | 1/81 | 5 g |
| 00374 | Sesbania grandiflora | Tree Seeds Internatl | USA | | 12/81 | sample |
| 00383 | Sesbania grandiflora | BLSF CATIE | Costa Rica | Guatamala | 4/82 | 25 g |
| 00519 | Sesbania grandiflora | BioEnergy Dev Corp | USA | India | 1/83 | 30 g |
| 00533 | Sesbania grandiflora | U. of Hawaii | USA | Thailand | 6/83 | 18 g |
| 00534 | Sesbania grandiflora | U. of Hawaii | USA | Costa Rica | 6/83 | 1 g |
| 00557 | Sesbania grandiflora | NifTAL Project | USA | Lahaina, Maui, Hawaii | 7/83 | 73 g |
| 00130 | Sesbania grandiflora var. Coccinea | U. of Hawaii | USA | Honolulu, Hawaii | 5/80 | 10 g |
| 00158 | Sesbania grandiflora var. Coccinea | U. of Hawaii | USA | Honolulu, Hawaii | 5/79 | 32 g |
| 00159 | Sesbania sesban (Egyptica) | NifTAL Project | USA | Egypt | 6/24/80 | 15 g |
| 00139 | Sesbania speciosa | U. of Hawaii | USA | Hawaii | 5/80 | 5 g |
| 00347 | Sesbania tomentosa | NifTAL Project | USA | Kahului, Maui Hawaii | 5/81 | sample |
| 00350 | Sophora chrysophylla | NifTAL Project | USA | Haleakala Park Hawaii | 3/81 | 13 g |
| 00600 | Sophora chrysophylla | NifTAL Project | USA | Haleakala Natl Park Hawaii | 7/84 | 14 g |
| 00120 | Tamarindus indica | CSIRO | Australia | Townsville, Australia | 10/23/80 | 90 g |
| 00387 | Tamarindus indica | Auroville | India | Bandia, Senegal | 4/82 | 30 g |
| 00382 | Tamarindus indica | BLSF CATIE | Costa Rica | | 4/82 | 50 g |
| 00189 | Tamarindus indica | Forest Res Int Bogor | Indonesia | L.P.H. Java, Indonesia | 11/80 | 70 g |
| 00560 | Tamarindus indica | NifTAL Project | USA | Lahaina, Maui, Hawaii | 7/83 | 17 seeds |

8'

Appendix 2

# THE GERMPLASM OF POTENTIALLY USEFUL NITROGEN-FIXING TREES

Progress report for period 01/01/83 - 06/30/83
(Grant # DAN-5542-G-SS-2094-00)

Jake Halliday
University of Hawaii NifTAL Project
P.O. Box 0, Paia, HI 96779, U.S.A.

## Summary

-- Over 222 accessions of nitrogen-fixing tree germplasm have been acquired.

-- Isolation and preliminary characterization of 349 presumptive strains of *Rhizobium* from 28 species of nitrogen-fixing trees have been completed.

-- Arboretum established with 13 different species of nitrogen-fixing trees planted to date.

-- Propagation house still in permit phase.

-- Temporary propagation house being utilized.

-- Laminar flow hood and cold storage units ordered.

-- Nitrogen-fixing tree survey and germplasm collecting from species growing on Maui undertaken.

-- Visited germplasm cold storage site at University of Hawaii and collected germplasm while there.

-- Vegetative propagation trial completed with *Leucaena leucocephala*.

## Administrative aspects

The proposed propagation house to be constructed at the Haleakala site has run into delays due to bureaucratic procedures within the University. In the interim a small structure abutting an existing building has been put into use as a propagation house. Cold storage units and a laminar flow hood have been ordered, after much delay, and delivery is expected soon. The purchase of supplies is proceeding without any problem.



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## Technical aspects

Germplasm of the 44 species of nitrogen-fixing trees deemed of high economic importance are being acquired on a continuing basis. The Maui component of the germplasm collection currently numbers about 224 accessions (which includes species of lesser importance). The catalogue is kept current. Several requests from researchers for germplasm from the collection have been filled. The requests come from such diverse countries as Costa Rica and India.

Presently 16 species of nitrogen-fixing trees are being raised in dibbling tubes of soil from three sites on Maui with widely different pH values. Later, rhizobia will be isolated from any nodules that form.

Fifty new presumptive strains have been isolated from Erythrina poeppigiana, Calliandra calothyrsus, Acacia aneura, and Mimosa scabrella. These strains have been added to the existing catalogue.

A vegetative propagation experiment of six week's duration using propagules of Leucaena leucocephala was initiated. Results were disappointing. A summary is appended (Attachment 1).

The nitrogen-fixing tree arboretum at Pauwela has been established with 13 different species presently in early stages of growth.

It has come to our attention that there are small numbers of thornless Prosopis pallida trees on Maui. These individuals are found tucked away among the more ubiquitous thorny variety groves on the dry side of the island. A survey located two trees relatively near the NifTAL site and three successful air layerings were obtained. These are now growing in pots with hopes of establishing a source for germplasm of thornless varieties.

Another survey has been undertaken to pinpoint locations on Maui of nitrogen-fixing tree species named on the Bellagio list. Eighteen different species have been found to date with seed collected from six. As the other species come into seed, it will be harvested and added to our collection.

Mr. Mann, research associate for the project, spent a fruitful day at the University's research and experimental farm on Oahu. While there he observed the germplasm cold storage site and returned with ideas to use with our own collection. He also toured the facility gathering more information in the process and collected some germplasm of nitrogen-fixing trees previously not represented in our collection.

## Budgetary aspects

A detailed projection of expenditures under the grant, suitably amended for the delayed start of operations, was developed. This includes the month-by-month status report by which project spending is monitored. It appears at this time there will be a carryover of funds to the second year of the project.

Forecast

-- Acquisition of seed stock to continue.

-- Propagation house will be constructed at Haleakala site.

-- Rhizobial affinities of 44 economically important nitrogen-fixing trees will continue to be determined.

-- Vegetative propagation trials will proceed.

-- Additions to the arboretum will be planted.

## ATTACHMENT 1

A vegetative propagation experiment using propagules of Leucaena leucocephala was conducted for six weeks at the Haleakala station, elevation 660 meters. Ambient air temperatures ranged from 16 degrees C (evening) to 30 degrees C (daytime). Rooting media included fine and coarse silica sand, vermiculite, and coarsely crushed volcanic cinders. All used in pure form. One of two vermiculite treatments and one of two coarse sand treatments had bottom heat applied (mean media temperature 31 degrees C). The remaining vermiculite and coarse sand, plus the fine sand and crushed cinder treatments had no heat applied. Half of the propagules in each tray of rooting media were dipped in a solution of IAA (100 ppm).

Propagules were cut from current season growth with one half the leaf area removed. The propagules were further cut into tip cuttings, third node only, fourth node only, fifth node, seventh node, and ninth node cuttings. Prior to being subdivided and placed in the rooting media, the cuttings were kept turgid in water.

After being placed in the rooting media, the trays of cuttings were placed on a misting table. The automatic misting system, when on, misted the cuttings for 5 seconds every 10 minutes. The system was on from 7:30 a.m. to 6:00 p.m. and again from 9:00 p.m. to midnight.

Third node propagules in heated coarse sand with no IAA displayed the highest rooting percentage at 50%. Other treatments showed 0% to 33%. Although the results were disappointing, one interesting note came out of the experiment. In heated vermiculite and no IAA, one tip cutting had profuse leafing and roots 10-35 cm. long with nodules formed on them after six weeks. This was an isolated phenomenon with a possible explanation of some sort of contamination. But it illustrates the fact that nodules can form on roots of L. leucocephala propagules.

# THE GERMPLASM OF POTENTIALLY USEFUL NITROGEN-FIXING TREES

Progress report for period 07/01/83 - 12/31/83
(Grant # DAN-5542-G-SS-2094-00)

Jake Halliday
University of Hawaii NifTAL Project
P.O. Box 0, Paia, HI 96779, U.S.A.

## Summary

-- Germplasm collection increased by 31 accessions, which includes 19 accessions represented on the "A" list.

-- Authentication and strain selection begun on 445 presumptive strains of *Rhizobium*.

-- Arboretum doing well with over 50 trees representing 34 different nitrogen-fixing tree species.

-- Propagation house nearing completion.

-- "Mini" microbiology lab set up using laminar flow hood.

-- Seed germplasm in cold storage utilizing small walk-in cooler.

-- Vesicular-arbuscular (VA) mycorrhizal study on roots begun.

## Administrative aspects

The propagation house, purchased in "kit" form, was finally ordered and delivered and will soon be ready for use at the Haleakala site. Also at the Haleakala site, a "mini" microbiology lab has been set up with the laminar flow hood as the main feature. After some minor adjustments the cold storage unit was made operational and the NFT germplasm collection stored there.

## Technical aspects

Although the germplasm collection was increased by 31 accessions (19 represented on the "A" list), the attached catalogue indicates a drop in total entries. This has happened because approximately 20 accessions had to be deleted due to fungal growth. With better storage conditions, we hope this problem has been eliminated. Of the 44 species named on the "A" list, 11 have yet to be added to our collection. Through more requests for germplasm we hope to remedy this situation. A total of 8 requests for NFT seed were filled from various countries plus supplying the needs of researchers here at the NifTAL Project. Regarding inoculum for NFT's another 8 requests were filled (totaling about 70 packets). An additional 3 requests are waiting on mailing instructions.

With 445 presumptive strains of *Rhizobium* isolated from NFT's, it is time to authenticate and do strain selection. This procedure has begun.

Preliminary work has begun to verify the absence, presence, or degree of VA mycorrhizal colonization on roots of nitrogen-fixing trees.

The arboretum at the Pauwela site is growing well with over 50 trees representing 34 different species in various stages of growth since the first planting in June, 1983. More species are planted monthly.

## Budgetary aspects

All is going according to schedule.

## Forecast

-- Acquisition of seed stock to continue.

-- Authentication and strain selection of presumptive *Rhizobium* strains to proceed.

-- VA mycorrhizal study to continue.

-- Additions to the arboretum will be planted.

# THE GERMPLASM OF POTENTIALLY USEFUL NITROGEN-FIXING TREES

Progress report for period 01/01/84 - 06/30/84
(Grant # DAN-5542-G-SS-2094-00)

Jake Halliday
University of Hawaii NifTAL Project
P.O. Box 0, Paia, HI 96779, U.S.A.

## Summary

-- Germplasm collection increased by 9 accessions, including 4 species previously not represented.

-- Authentication of 10 strains of *Rhizobium* completed.

-- VA mycorrhizal study on roots of 4 NFT species done.

-- Arboretum now contains 67 trees (47 species) in various stages of growth.

-- Document and germplasm requests filled.

## Technical aspects

With the addition of 9 accessions to the germplasm collection, including 8 on the "A" list (44 species) and 4 species previously not represented, the total number of species in the collection presently stands at 120. With the authentication of 10 strains of *Rhizobium* isolated from NFT's we now have strains which nodulate 18 different species on the "A" list.

Using tree seedlings of *Parkia roxburghii*, *Acacia farnesiana*, *A. nilotica*, and *A. senegal* a study of VA mycorrhizal (VAM) colonization was conducted. The seedlings were grown in soils with pH's of 4.5, 6.4, and 8.3. Greatest VAM colonization occurred in alkaline soil with all 4 species with no colonization observed in any of the roots grown in the acidic soil. Further study is planned to attempt to explain this phenomenon. It was found that tree seedling roots are heavily pigmented thus causing the researcher to modify the standard clearing and staining process.

The nitrogen-fixing tree arboretum has become a main feature for visiting scientists and researchers training at NifTAL to see while on Maui. It now houses 67 trees representing 47 different species.

Almost ready for transplanting into the arboretum are species of 6 more NFT's.

Requests for documents and germplasm are handled as expeditiously as possible. During this report period, 11 requests for documents, including 8 for the popular Catalogue of Nitrogen-Fixing Tree Germplasm were filled from scientists from Poland to Western Samoa. The catalogue is updated every 6 months. Also, requests for germplasm were received and filled. A total of 58 packets of inoculant were sent out and 14 requests for seed were filled from abroad, along with numerous requests filled for researchers right here at NifTAL.

Copies of Register of Nodulation Reports for Leguminous Trees and Other Arboreal Genera With Nitrogen Fixing Members and Guidelines for Collecting The Root Nodules of Leguminous Trees are attached for your information.

## Budgetary aspects

Nothing to report.



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Halliday, Jake. University of Hawaii NifTAL Project and MIRCEN, P.O. Box O, Paia, Hawaii 96779, U.S.A.

GUIDELINES FOR COLLECTING THE ROOT NODULES OF LEGUMINOUS TREES.

Exceptional performance of a leguminous tree in a particular niche may well be a manifestation of an especially effective match between the tree host and the specific strain of Rhizobium occupying its nodules. Thus a plant explorer who collects seed alone should not expect to see the full potential of the tree accession in subsequent evaluations unless some attempt is made to reconstitute an equally effective symbiosis.

Nodulation problems can occur when some tree species are introduced to new environments. Experience shows that nodulation failures can be avoided if strains of Rhizobium which are genetically and geographically affiliated with their hosts can be made available for use as inoculants. When possible, nodule (Rhizobium) collection should be undertaken by plant explorers when they are collecting seeds.

The following instructions describe how a sample should be taken in the field and shipped to a receiving laboratory offering Rhizobium isolation, evaluation, and preservation services. The instructions should be followed closely to favor successful isolation of the rhizobial strains and also to comply with quarantine protocols applying to the receiving laboratory.

Ideally, a trip to collect root nodules of leguminous trees should take place in the season of vegetative plant growth and adequate soil moisture. This is when legume roots have active nodules and is also the time when the soil is easiest to dig for nodules.

The materials required during a nodule collection trip depend on its duration. On trips that are completed in one day, the following are needed: spade; knife; permanent marker; field book; and a selection of polyethylene bags. For trips of up to two weeks, collection vessels (Figure 1) are needed in addition to all the items already listed. For longer trips it is best to forward samples at intervals to the receiving laboratory and this requires packaging materials and sterilizing solution (alcohol or bleach).

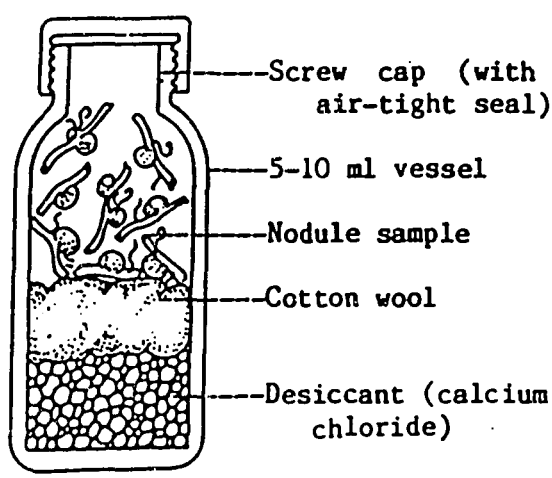


Figure 1. Collection vessel.

Having located a leguminous tree that is of sufficient interest to prompt you to collect seed, take the following approach:

-- if you are dealing with a tall, mature tree, are there any superficial roots (in the leaf litter?) that have nodules? Make sure, of course, that the roots belong to the tree of interest.

-- are there any seedlings of the tree that can be dug up easily, and do they have root nodules?

-- if the answers to the above are "no" then it is best to send seeds and a few grams of soil from which it may be possible for the receiving laboratory to isolate rhizobia by an indirect procedure later.

-- has the species ever been reported to nodulate? A register of nodulation reports is available from the author. If "no" and you have observed nodules, then it becomes very important to confirm that the tree is really the species you think it is, and that the nodules occur on the roots of that tree. The receiving laboratory should be advised of the "new nodulation report" so that special care can be taken to isolate and authenticate the Rhizobium."

When it is possible to deliver the sample to the receiving laboratory on the same day, it is simplest to excavate some nodulated root together with the adhering soil and pack it firmly into a polyethylene bag for transport to the laboratory. The receiving laboratory will then isolate from the fresh nodules, or store a sample of the nodules for subsequent isolation.

For trips of more than one day, collected nodules must be prevented from decomposing and protected from invasion by soil microorganisms which interfere with subsequent isolation procedures. Segments of the nodulated root (again, be sure it belongs to the proper tree!) may be collected in the field, stored temporarily in a plastic bag with moist soil, and transferred later to nodule collection vessels. Alternatively they may be retrieved in the field and transferred directly to the collection vessels.

Do not expect to locate nodules on the main rootstock of tree species. Nodules of most legumes have a finite life span, and a maturing root that may have borne nodules when younger, no longer has the anatomy that would permit reinfection and nodulation. Nodules on tree species can sometimes be located by following a lateral root out to the zone of new growth. This zone may be a long way from the trunk of the tree. Do not expect to find nodules on a sapling plant that has been pulled out of the ground by force. In most species, the connection between the nodule and root is extremely tenuous. Careful excavation (archeologist style) gives best results.

Try to collect 20 nodules per tree. This increases the chances of obtaining a viable isolate later. It also increases the chance of obtaining a highly effective isolate as many nodules are occupied by inferior rhizobia.

Shake or rub away any adhering soil from the nodules. Blot dry any excess moisture, particularly if you had washed the roots to locate nodules. All of the nodules from a single tree go into the same vessel. Under no circumstances should nodule samples from different plants be combined. The cap on the vessel should be tightly sealed. Label the vessel with a specimen number that relates it to the documentation of its tree accession and site of origin.

When trips are longer than two weeks, the collector should dispatch samples to a collaborating laboratory periodically over the trip.

Sample vessels that are to be mailed to a receiving laboratory should be surface sterilized by wiping the outside with alcohol or bleach. This is to reduce the risk that the vessels have pathogenic organisms adhering to them. The receiving laboratory takes responsibility for quarantine and destruction of pathogens inside the vessel adhering to the nodule samples.

Most of the information required for nodule collection is the same as would be noted in any case by a plant explorer collecting seeds. The data sought by the NifTAL receiving laboratory for documenting a Rhizobium strain is indicated in Figure 2. The collector contributes the items marked * and the receiving laboratory progessively completes the record.

Within the framework of the network of Microbiological Resource Centers (MIRCENs) sponsored by Unesco, several laboratories specialize in Rhizobium germplasm preservation. Among the MIRCENs, the University of Hawaii NifTAL Project has a special interest in Rhizobium strains for leguminous trees. NifTAL is willing to receive nodules from plant collectors for isolation evaluation and preservation. Strains and related data are continuously available to the original collector for his/her own purposes.

It is essential to contact the collaborating laboratory at the planning stage of the collection trip. Provide information on the approximate number of samples to expect and of any special emphasis with respect to species or soil type from which material will be collected. In the case of NifTAL, mailing instructions and quarantine labels are sent to collectors. Only materials entering Hawaii by approved quarantine channels will be released to NifTAL for handling.

Figure 2.

Data required by the NifTAL laboratory for completion of a strain record. Items to be provided by the collector are marked *

**********

RHIZOBIUM GERMPLASM RESOURCE - University of Hawaii NifTAL Project and MIRCEN  Rhizobium strain TAL ____

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Rhizobium strain TAL ____  Parent host : *_____  Subfamily: *_____

Common names: *_____  Uses : *_____

Receipt by NifTAL _____  Courtesy of : *_____(collector's institute)_____  From : *(collector's name)

Form received _____  Collected : *_____(location where collected)_____  *_____(site data)_____

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Fast/slow grower : _____  Host for authentication : _____  Effectiveness : _____

Acid/alkali producer : _____  Other host tests : _____ _____

Culture form : _____  _____ _____

Last purity check : _____  _____ _____

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Comments : _____

This strain also known as : _____  Collected in : _____

Availability of antisera : _____  Availability of antibiotic resistant mutants : _____

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Enquiries : University of Hawaii, NifTAL Project and Mircen, P.O. Box 0, Paia, Hawaii 96779, U.S.A.

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## REGISTER OF NODULATION REPORTS FOR LEGUMINOUS TREES AND OTHER ARBOREAL GENERA WITH NITROGEN FIXING MEMBERS.

Multi-purpose trees are the focus of a great deal of current research in both agriculture and forestry. This is primarily in response to the worsening world food and fuelwood crises, and the alarming rate of loss of the world's natural forests. In particular, trees which can fix nitrogen biologically are the subject of increased research, because of their enviable ability to be self-sufficient for their nitrogen requirements in low fertility soils.

At least two surprises are in store for researchers seeking nitrogen fixing trees with a potential role in development programs. One surprise is the enormous number of species eligible for their consideration. A second surprise is that reliable confirmation of whether a species has ever been observed to nodulate and fix nitrogen is hard to locate.

The NifTAL Project was established at the University of Hawaii by USAID as a resource to researchers worldwide for technical support, information and material services, and training in aspects of nitrogen fixation by legumes with a role in international agricultural development programs. As part of this commitment, NifTAL prepared and maintains a data base on the symbiotic affinities of woody perennial species under consideration as "nitrogen fixing trees."

The NifTAL data base has up-to-date records on nodulation reports for more than 1,000 tree species. The data base includes a bibliography of the key references in the scientific literature which substantiate whether or not each species fixes nitrogen. In the full form of the data base, many other parameters are detailed, including mycorrhizal affinities of tree species.

The alphabetical register of species which follows has been abstracted from the main data base. The list is a ready guide to 563 species which have been positively reported to nodulate -- marked (+), 129 species reported not to nodulate -- marked (-), and 358 species for which this compiler has neither positive nor negative nodulation reports -- marked ( ).

It is hoped that publication of this register will inspire plant explorers to check for nodulation of the species not yet known to nodulate.

As a user of this document, you may notice omissions or errors. You may have information which conflicts with data presented. In either case, you are encouraged to communicate with the compiler at the address indicated, and thereby contribute to upgrading the resource document for future users.

Users wishing to receive six-monthly updates of the Register should request this service from NifTAL. General enquiries on the data base are welcome. The complete resource document "Symbiotic Affinities of Woody Perennials under Consideration as Nitrogen Fixing Trees" is available from NifTAL.

Register of nodulation reports for leguminous trees and other arboreal genera with nitrogen fixing members
(+) = reported to nodulate; (-) = reported not to nodulate; ( ) = no report available.

(+) Acacia abyssinica
(+) Acacia acinacea
(+) Acacia acuminata
(-) Acacia adenocalyx
(+) Acacia adunca
(+) Acacia alata
(+) Acacia albida
(+) Acacia anceps
(+) Acacia aneura
(+) Acacia arabica
(+) Acacia arenaria
(+) Acacia armata
(+) Acacia aroma
(+) Acacia aspera
(+) Acacia ataxacantha
(+) Acacia aulacocarpa
(+) Acacia auriculiformis
(+) Acacia baileyana
(+) Acacia berlandieri
(+) Acacia berteriana
(+) Acacia bidentata
(+) Acacia biflora
(+) Acacia blakelyi
(+) Acacia bonariensis
(+) Acacia borlaea
(+) Acacia brachybotrya
(+) Acacia brachystachya
(+) Acacia burkei
(+) Acacia buxifolia
(+) Acacia byoneana
(+) Acacia caffra
(+) Acacia calamifolia
(+) Acacia calcina
(-) Acacia cambagei
(+) Acacia cana
(+) Acacia cardiophylla
(+) Acacia catechu
( ) Acacia cavan
(+) Acacia cavenia
(+) Acacia celastrifolia
(+) Acacia chariessa
(+) Acacia cognata
(+) Acacia colletoides
(+) Acacia complanata
(+) Acacia confusa
(+) Acacia constricta
( ) Acacia crassicarpa
(+) Acacia cultriformis
(+) Acacia cunninghamii
(+) Acacia cupressiformis
(+) Acacia cyanophylla
(+) Acacia cyclops
(+) Acacia davyi
(+) Acacia dealbata
( ) Acacia deamii
(+) Acacia deanei
(+) Acacia decora
(+) Acacia decurrens
(+) Acacia diptera
(+) Acacia doratoxylon
(+) Acacia drummondii
(+) Acacia ehrenbergiana
(+) Acacia elata
(+) Acacia eremophila
(+) Acacia ericifolia
(+) Acacia erinacea
(+) Acacia erubescens
(+) Acacia estrophiolata
(-) Acacia excelsa
(+) Acacia extensa
(+) Acacia exuvialis
(+) Acacia farnesiana
(+) Acacia filifolia
(+) Acacia fimbriata
( ) Acacia fistula
( ) Acacia flava
(+) Acacia fleckii
(+) Acacia flexuosa
(+) Acacia floribunda
(+) Acacia galpinii
(+) Acacia genistoides
(+) Acacia georginae
(+) Acacia giraffae
(+) Acacia gladiiformis
(+) Acacia glauca
(+) Acacia glaucescens
(+) Acacia glaucoptera
(-) Acacia glomerosa
(+) Acacia goetzii
(+) Acacia grandicornuta
(+) Acacia granitica
(+) Acacia greggii
(+) Acacia hakeoides
(+) Acacia harpophylla
(+) Acacia harveyi
(+) Acacia hastulata
(+) Acacia hebeclada
(+) Acacia hereroensis
( ) Acacia heteracantha
(+) Acacia heterophylla
(+) Acacia holosericea
(+) Acacia homalophylla
(+) Acacia horrida
(+) Acacia horridula
(+) Acacia huegelii
(+) Acacia instia
(+) Acacia jonesii
(+) Acacia juniperina
(+) Acacia karoo
(+) Acacia kauaiensis
(+) Acacia kempeana
(+) Acacia kirkii
(+) Acacia koa
(+) Acacia koaia
(+) Acacia kraussiana
(+) Acacia latifolia
(+) Acacia leptoneura
( ) Acacia leucophloea
(+) Acacia linearis
(+) Acacia lineata
(+) Acacia lingulata
(-) Acacia loderi
(+) Acacia longifolia
( ) Acacia luederitzii
(+) Acacia lunata
(+) Acacia macrantha
(+) Acacia macrathyrsa
(+) Acacia mangium
(+) Acacia mearnsii
(+) Acacia melanoxylon
(+) Acacia mellei
(+) Acacia mellifera
(+) Acacia microbotrya
(+) Acacia mollissima
(+) Acacia mooreana
(+) Acacia myrtifolia
(+) Acacia nebrownii
(+) Acacia neriifolia
(+) Acacia nervosa
(+) Acacia nigrescens
(+) Acacia nigricans
(+) Acacia nilotica
(+) Acacia nubica
(+) Acacia obliqua
(+) Acacia obscura
(+) Acacia orfoto
(+) Acacia oswaldii
(+) Acacia parramattensis
(+) Acacia pennata
(+) Acacia pennatula

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Register of nodulation reports for leguminous trees and other arboreal genera with nitrogen fixing members
(+) = reported to nodulate; (-) = reported not to nodulate; ( ) = no report available.

(+) Acacia pentadenia
(-) Acacia pentagona
(+) Acacia permixta
( ) Acacia peuce
(+) Acacia podalyriaefolia
(+) Acacia polyacantha
(+) Acacia pravissima
(+) Acacia prominens
(+) Acacia pubescens
(+) Acacia pulchella
(+) Acacia pumila
(+) Acacia pycnantha
(+) Acacia raddiana
(+) Acacia reficiens
(+) Acacia rehmanniana
(+) Acacia restiacea
(+) Acacia rhetinodes
(+) Acacia richii
(+) Acacia rigens
(+) Acacia robusta
(+) Acacia rostellifera
(+) Acacia rubida
(+) Acacia salicina
(+) Acacia saligna
(-) Acacia schweinfurthii
(+) Acacia scorpoides
(+) Acacia senegal
(+) Acacia seyal
( ) Acacia siamensis
(+) Acacia sieberana
(+) Acacia silvicola
(+) Acacia spadicigera
(+) Acacia spathulata
(+) Acacia spinescens
( ) Acacia spirocarpa
(+) Acacia squamata
(-) Acacia stenophylla
(+) Acacia stenoptera
(+) Acacia strigosa
(+) Acacia stulmanii
(+) Acacia suavolens
(+) Acacia subcaerulea
(-) Acacia suffructescens
(+) Acacia sulcata
(+) Acacia swazica
(+) Acacia tamminensis
(+) Acacia tennispina
(+) Acacia tetragonocarpa
( ) Acacia tomentosa
(+) Acacia tortilis

(+) Acacia triptera
(+) Acacia tucumanensis
(+) Acacia unicifera
(+) Acacia urophylla
( ) Acacia verek
(+) Acacia verticillata
(+) Acacia victoriae
(+) Acacia visco
(+) Acacia visite
(+) Acacia volubilis
(+) Acacia welwitscii
(+) Acacia xanthophloea
(+) Acrocarpus fraxinifolius
(-) Adenanthera bicolor
(-) Adenanthera intermedia
(+) Adenanthera pavonina
(-) Afzelia africana
(-) Afzelia quanzensis
( ) Airyantha borneensis
( ) Airyantha schweinfurthii
(+) Albizia acle
(+) Albizia adianthifolia
(+) Albizia amara
(+) Albizia anthelmintica
(+) Albizia antunesiana
(+) Albizia brevifolia
(+) Albizia carbonaria
(+) Albizia chinensis
(+) Albizia distachya
(+) Albizia ealensis
(+) Albizia falcataria
(+) Albizia forbesii
(+) Albizia glaberrima
(+) Albizia gummifera
(+) Albizia harveyi
(+) Albizia julibrissin
(+) Albizia katangensis
(+) Albizia lebbek
(+) Albizia lebbekoides
(+) Albizia lophantha
(+) Albizia moluccana
(+) Albizia odoratissima
(+) Albizia petersiana
(+) Albizia procera
(+) Albizia retusa
(+) Albizia saponaria
(+) Albizia schimperana
(+) Albizia stipulata
(+) Albizia tanganyicensis
(+) Albizia versicolor

(+) Albizia zimmermannii
( ) Aldina insignis
(-) Alexa imperatricis
(+) Alnus acuminata
(+) Alnus cordata
(+) Alnus crispa
(+) Alnus firma
(+) Alnus formosana
(+) Alnus fructicosa
(+) Alnus glutinosa
(+) Alnus hirsuta
(+) Alnus incana
(+) Alnus jorullensis
(+) Alnus maritima
(+) Alnus mollis
(+) Alnus multinervous
(+) Alnus nepalensis
(+) Alnus nitida
(+) Alnus orientalis
(+) Alnus rubra
(+) Alnus serrulata
(+) Alnus sieboldiana
(+) Alnus sinuata
(+) Alnus tenuifolia
(+) Alnus tinctoria
(+) Alnus undulata
(+) Alnus viridis
(-) Amblygonocarpus andongensis
( ) Amburana acreana
( ) Amburana cearensis
(+) Amherstia nobilis
( ) Amphimas ferrugineus
( ) Anadenanthera colubrina
(+) Anadenanthera peregrina
(+) Andira fraxinifolia
(+) Andira frondora
(+) Andira legalis
(+) Andira spectabilis
( ) Androcalymma glabiforum
( ) Angylocalyx oligophyllus
( ) Angylocalyx zenkeri
( ) Antheroporum pierrei
( ) Anthonotha macrophylla
( ) Apaloxylon madagascariensis
( ) Aphonocalyx cynometroides
( ) Apoplanesia paniculata
( ) Aprevalia floribunda
(+) Apuleia praecox
( ) Arthrocarpum gracile
( ) Arthrosamanea pistaciaefolia

Register of nodulation reports for leguminous trees and other arboreal genera with nitrogen fixing members
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( ) Ateleia pterocarpa
( ) Baikiaea insignis
(-) Baikiaea plurijuga
( ) Baphiopsis parviflora
( ) Barklya syringifolia
( ) Batesia floribunda
( ) Bathiaea rubiflora
( ) Baudouinia sollyiformis
(-) Bauhinia acuminata
(-) Bauhinia benthamiana
(-) Bauhinia bidentata
(-) Bauhinia binata
(-) Bauhinia blakeana
(-) Bauhinia candicans
(-) Bauhinia carronni
(-) Bauhinia corymbosa
(-) Bauhinia cumingiana
(-) Bauhinia diphylla
(-) Bauhinia excisa
(-) Bauhinia galpinii
(-) Bauhinia kirkii
(-) Bauhinia kochiana
(-) Bauhinia kunthiana
(-) Bauhinia macrantha
(-) Bauhinia malabarica
(-) Bauhinia megalandra
(-) Bauhinia monandra
(-) Bauhinia pauletia
(-) Bauhinia petersiana
(-) Bauhinia purpurea
(-) Bauhinia racemosa
(-) Bauhinia reticulata
(-) Bauhinia tomentosa
( ) Behaimia cubensis
( ) Belairia spinosa
( ) Bergeronia sericea
( ) Berlinia acuminata
( ) Berlinia confusa
(-) Berlinia grandiflora
(+) Bolusanthus speciosus
(+) Bowdichia virgilioides
(-) Brachystegia allenii
( ) Brachystegia appendiculata
(-) Brachystegia boehmii
( ) Brachystegia glaberrima
(-) Brachystegia glaucescens
( ) Brachystegia kennedyi
(-) Brachystegia laurentii
( ) Brachystegia leonensis
(-) Brachystegia manga
(-) Brachystegia microphylla
( ) Brachystegia nigerica
(+) Brachystegia spiciformis
(-) Brachystegia utilis
( ) Brachystegia wangermeeana
( ) Brandzeia filicifolia
( ) Breierea insignis
( ) Brongniartia minutifolia
( ) Brongniartia podalyroides
(+) Brownea ariza
(-) Brownea capitella
(-) Brownea coccinea
(-) Brownea crawfordii
(-) Brownea grandiceps
(-) Brownea latifolia
( ) Browneopsis ucayalina
(+) Brya ebonus
(-) Burkea africana
( ) Bussea occidentalis
( ) Butea eggelingii
( ) Butea massaiensis
(-) Butea monosperma
( ) Cadia purpurea
(-) Caesalpinia bonduc
(-) Caesalpinia cacalaco
(-) Caesalpinia coriaria
(-) Caesalpinia decapetala
(+) Caesalpinia echinata
( ) Caesalpinia peltophoroides
(-) Caesalpinia pulcherrima
(+) Cajanus cajan
(+) Calliandra affinis
(+) Calliandra calothyrsus
(-) Calliandra eriophylla
(+) Calliandra foliosa
(+) Calliandra grandiflora
(+) Calliandra guildingii
(+) Calliandra haematocephala
(+) Calliandra haematoma
(-) Calliandra humilis
(+) Calliandra inaequilatera
(-) Calliandra parvifolia
(+) Calliandra selloi
(+) Calliandra surinamensis
(+) Calliandra tweedii
( ) Calpocalyx brevibracteatus
( ) Campsiandra angustifolia
( ) Campsiandra comosa
( ) Campsiandra laurifolia
(+) Caragana arborescens
(+) Caragana aurantiaca
(+) Caragana frutescens
(+) Caragana pekinensis
( ) Cascaronia astragalina
(+) Cassia aeschynomene
(-) Cassia alata
(-) Cassia artemisoides
(+) Cassia cultrifolia
(-) Cassia fistula
(-) Cassia glauca
(-) Cassia grandis
(-) Cassia hirsuta
(-) Cassia javanica
(-) Cassia leiandra
(-) Cassia nodosa
(+) Cassia occidentalis
(-) Cassia siamea
(-) Cassia tora
(+) Cassia wrightii
( ) Castanospermum australe
(+) Casuarina cristata
(+) Casuarina cunninghamiana
(+) Casuarina equistifolia
(+) Casuarina fraseriana
(+) Casuarina glauca
( ) Casuarina grandis
(+) Casuarina huegeliana
(+) Casuarina junghuhniana
(+) Casuarina littoris
(+) Casuarina muellerana
(+) Casuarina muricata
(+) Casuarina nodiflora
( ) Casuarina obesa
( ) Casuarina ologodon
(+) Casuarina pusilla
(+) Casuarina quadrivalis
(+) Casuarina stricta
(+) Casuarina sumatrana
(+) Casuarina tenuissima
(+) Casuarina torulosa
(+) Cathormion leptophyllum
( ) Cathormion moniliforme
(+) Ceanothus americanus
(+) Ceanothus azurens
(+) Ceanothus cordulatus
(+) Ceanothus crassifolius
(+) Ceanothus cuneatus
(+) Ceanothus delilanus
(+) Ceanothus divaricatus
(+) Ceanothus diversifolius

Register of nodulation reports for leguminous trees and other arboreal genera with nitrogen fixing members
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**********

(+) Ceanothus fendleri
(+) Ceanothus foliosus
(+) Ceanothus fresnensis
(+) Ceanothus glabra
(+) Ceanothus gloriosa
(+) Ceanothus greggii
(+) Ceanothus griseus
(+) Ceanothus impressus
(+) Ceanothus incana
(+) Ceanothus integerrimus
(+) Ceanothus intermedius
(+) Ceanothus jepsonii
(+) Ceanothus leucodermis
(+) Ceanothus microphyllus
(+) Ceanothus oliganthus
(+) Ceanothus ovatus
(+) Ceanothus parvifolius
(+) Ceanothus prostratus
(+) Ceanothus rigidus
(+) Ceanothus sanguineus
(+) Ceanothus sorediatans
(+) Ceanothus thyrsiflorus
(+) Ceanothus velutinus
(+) Cedrelinga catenaeformis
( ) Cenostigma macrophyllum
(+) Centrolobium robustum
(-) Ceratonia siliqua
(-) Cercidium floridum
( ) Cercidium praecox
(-) Cercidium torreyanum
(-) Cercis siliquastrum
(+) Cercocarpus betuloides
( ) Chidlowia sanguinea
(+) Chordospartium stevensonii
( ) Cladastris kentukia
( ) Cladrastis lutea
(-) Cladrastis platycarpa
( ) Cladrastis sinensis
(+) Clathrotropis brachypetala
(+) Clathrotropis macrocarpus
( ) Clathrotropis nitida
(-) Colophospermum mopane
(+) Colvillea racemosa
(+) Comptonia peregrina
( ) Copaifera langsdorfii
(+) Cordeauxia edulis
(-) Cordyla africana
(+) Coriaria angustissima
(+) Coriaria arborea
(+) Coriaria intermedia
(+) Coriaria japonica
(+) Coriaria kingiana
(+) Coriaria lurida
(+) Coriaria myrtifolia
(+) Coriaria plumosa
(+) Coriaria pottsiana
(+) Coriaria pteridoides
(+) Coriaria sarmentosa
(+) Coriaria thymifolia
(+) Craibia baptisarum
(+) Craibia brevicaudata
( ) Craibia grandiflora
( ) Crudia gabonensis
(-) Crudia parivoa
( ) Cyclobium brasiliense
( ) Cyclolobium vecchii
( ) Cylicodiscus gabunensis
( ) Cymbosepalum baroni
( ) Cynometra alexandri
( ) Cynometra ananta
( ) Cynometra bauhiniaefolia
(-) Cynometra cauliflora
(-) Cynometra hankei
( ) Cynometra leonensis
(-) Cynometra ramiflora
( ) Cynometra retusa
( ) Dalbergia baroni
( ) Dalbergia cearensis
( ) Dalbergia cochinchinensis
( ) Dalbergia cubilquitensis
( ) Dalbergia greveana
(+) Dalbergia latifolia
(+) Dalbergia melanoxylon
(+) Dalbergia nigra
( ) Dalbergia retusa
(+) Dalbergia sissoo
( ) Dalbergia spruciana
( ) Dalbergia stevensonii
(+) Dalbergiella nyasae
(+) Dalea spinosa
( ) Daniellia ogea
( ) Daniellia olivera
( ) Daniellia thurifera
( ) Dansera procera
( ) Delaportea armata
( ) Delonix baccal
(-) Delonix elata
(+) Delonix regia
( ) Denistophytum madagascariense
(+) Derris indica
( ) Detarium senegalense
(+) Dewevrea bilabiata
(-) Dialium engleranum
(-) Dialium pachyphyllum
(+) Dialium zenkeri
(+) Dichrostachys cinerea
(+) Dichrostachys glomerata
(+) Dichrostachys spicata
( ) Dicorynia guianensis
( ) Dicraeopetalum stipulare
(+) Dicymbe altsoni
(+) Dicymbe corymbosa
( ) Didelotia africana
(+) Dimorphandra davisii
( ) Dinizia excelsa
( ) Dinizia excelsa
( ) Dioclea species
( ) Diphysa floribunda
( ) Diphysa robinioides
(-) Diplotropis purpurea
( ) Diplotropis species
(-) Dipteryx odorata
( ) Dipteryx trifoliata
( ) Diptychandra epunctata
(+) Discaria toumatou
( ) Distemonanthus benthamianus
(+) Dryas drummondii
(+) Dryas integrifolia
(+) Dryas octopetalia
( ) Duparquetia orchidacea
( ) Dussia discolor
( ) Dussia martinicensis
(+) Elaeagnus angustifolia
(+) Elaeagnus argentea
(+) Elaeagnus commutata
(+) Elaeagnus edulis
(+) Elaeagnus longipes
(+) Elaeagnus macrophylla
(+) Elaeagnus multiflora
(+) Elaeagnus pungens
(+) Elaeagnus rhamnoides
(+) Elaeagnus umbellata
( ) Eligmocarpus cyometroides
( ) Elizabetha durissima
( ) Elizabetha princeps
( ) Endertia spectabilis
( ) Englerodendrom usambarense
(+) Entada abyssinica
(+) Entada phaseoloides
(+) Entada sudanica

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Register of nodulation reports for leguminous trees and other arboreal genera with nitrogen fixing members
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(+) Enterolobium cyclocarpum
(+) Enterolobium schomburgkii
(+) Enterolobium timbouva
(-) Eperua bijuga
(+) Eperua falcata
( ) Eperua jenmani
( ) Eperua purpurea
(+) Erythrina abyssinica
(+) Erythrina americana
(+) Erythrina berteroana
(+) Erythrina caffra
(+) Erythrina crista-galli
(+) Erythrina fusca
(+) Erythrina glauca
(+) Erythrina indica
(+) Erythrina lithosperma
(+) Erythrina monosperma
( ) Erythrina orientalis
(+) Erythrina poeppigiana
(+) Erythrina suberosa
(+) Erythrophleum africanum
( ) Erythrophleum ivorense
(+) Erythrophleum suaveolens
( ) Etaballia dubia
( ) Europetalum batesii
( ) Eurypatalum tessmanii
( ) Exostyles venusta
(-) Eysenhardtia amorphoides
( ) Eysenhardtia peninsularis
(+) Eysenhardtia texana
( ) Ferreirea spectabilis
( ) Fillaeopsis discophora
( ) Fissicalyx fendleri
( ) Fordia cauliflora
( ) Gagnebina tamariscina
(+) Genista sp.
(+) Geoffroea decorticans
( ) Geoffroea spinosa
( ) Gilbertiodendron demonstrans
( ) Gilletiodendron klanei
(-) Gleditsia amorphoides
(-) Gleditsia caspica
(-) Gleditsia japonica
(-) Gleditsia sinensis
(-) Gleditsia triacanthos
( ) Gliricidia ehrenbergii
( ) Gliricidia lambii
(+) Gliricidia sepium
( ) Goldmania foetida
(+) Gossweilerodendron balsamiferu
(+) Gourliea decorticans
(-) Guibourtia coleosperma
(-) Guibourtia conjugata
( ) Guibourtia demeusei
( ) Guibourtia schliebenii
(-) Gymnocladus dioicus
( ) Haematoxylon brasiletto
(-) Haematoxylon campechianum
( ) Haplormorsia monophylla
( ) Hardwickia binata
(+) Hardwickia pinnata
( ) Harpalyce cubensis
( ) Hebestigma cubense
( ) Hesperolaburnum platycarpum
( ) Hesperothamnus littoralis
( ) Heterostemon mimosoides
(+) Hippophae rhamnoides
(-) Holocalyx balansae
( ) Humboldtia laurifolia
( ) Hylodendrom gabunense
( ) Hymenaea confertiflora
(+) Hymenaea courbaril
( ) Hymenolobium excelsum
( ) Hymenolobium nitidum
( ) Hymenostegia floribunda
( ) Indopiptadenia oudhensis
( ) Inga altissima
(+) Inga edulis
(+) Inga fastuosa
( ) Inga feullei
(+) Inga jiniquil
(+) Inga laurina
(+) Inga luschnathiana
(+) Inga oerstediana
( ) Inga paterna
(+) Inga quaternata
(+) Inga vera
(-) Inocarpus edulis
(-) Intsia acuminata
(-) Intsia bakeri
(+) Intsia bijuga
( ) Intsia palembanica
( ) Intsia plurijuga
( ) Intsia retusa
( ) Isoberlina schefflera
( ) Isoberlinia argotensis
( ) Isoberlinia dalzielii
( ) Isoberlinia doka
( ) Isoberlinia tomentosa
( ) Isomacrolobium leptorrachis
( ) Jacqueshuberia quinquangulata
(-) Julbernardia globiflora
( ) Julbernardia hochreutineri
( ) Julbernardia magnistipulata
( ) Julbernardia paniculata
( ) Julbernardia seretii
( ) Julbernardia unijugata
( ) Kalappia celebica
( ) Kingiodendron alternifolium
( ) Kingiodendron pinnatum
( ) Koompassia excelsa
(-) Koompassia malaccensis
(+) Laburnum alpinum
(+) Laburnum anagyroides
(+) Laburnum pratense
( ) Lebruniodendron lepthanthum
( ) Lecointea amazonica
( ) Lennea robinioides
( ) Leonardoxa africana
(+) Leucaena collinsii
(+) Leucaena diversifolia
(+) Leucaena esculenta
(+) Leucaena lanceolota
(+) Leucaena leucocephala
(+) Leucaena macrophylla
(+) Leucaena pulverulenta
(+) Leucaena retusa
(+) Leucaena shannoni
(+) Leucaena trichodes
( ) Leucostegane latistipulata
( ) Librevillea klainei
( ) Loesenera kalantha
(+) Lonchocarpus capassa
(+) Lonchocarpus latifolius
( ) Lonchocarpus punctatus
(+) Lonchocarpus sericeus
( ) Lonchocarpus utilis
(+) Lonchocarpus violaceus
(+) Lysidice rhodostegia
( ) Lysiloma auritum
( ) Lysiloma bahamensis
( ) Lysiloma divaricata
( ) Lysiloma latisiliqua
(+) Lysiloma thornberi
(+) Maackia amurensis
(-) Maackia chinensis
( ) Maackia floribunda
(+) Machaerium robinifolium
( ) Machaerium schomburgkii
( ) Macroberlinia bracteosa

Register of nodulation reports for leguminous trees and other arboreal genera with nitrogen fixing members
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(+) Macrozamia communis
(+) Macrozamia riedlei
(+) Maniltoa grandiflora
(-) Maniltoa scheffera
( ) Marmaroxylon racemosum
( ) Martiodendron excelsum
( ) Melanoxylon brauna
( ) Michelsonia microphylla
( ) Microberlinia brazzavillensis
( ) Milbraediodendron excelsum
(+) Millettia dubia
( ) Millettia grandis
( ) Millettia laurentii
( ) Millettia rubiginosa
(+) Millettia stuhlmannii
(+) Millettia thonningii
(+) Millettia usaramensis
( ) Mimosa bracaatinga
(+) Mimosa caesalpiniaefolia
(+) Mimosa ceratonia
(+) Mimosa malacentra
(+) Mimosa scabrella
(+) Mimosa tenuiflora
( ) Mimozyganthus carinatus
( ) Moldenhauera floribunda
( ) Monopetalanthus pteridophyllus
( ) Monopteryx angustifolia
( ) Monoschisma leptostachyum
(+) Mora excelsa
( ) Mora gonggrijpii
( ) Muellera frutescens
(+) Mundulea sericea
(+) Myrica adenophora
(+) Myrica asplenifolia
(+) Myrica carolinensis
(+) Myrica cerifera
(+) Myrica gale
(+) Myrica javanica
(+) Myrica pensylvanica
(+) Myrica pilulifera
(+) Myrica pubescens
(+) Myrica rubra
(+) Myrica sapida
(+) Myrica serrata
( ) Myrocarpus fastigiatus
(+) Myrocarpus frondosus
( ) Myrospermum frutescens
(+) Myroxylon balsamum
( ) Myroxylon pereirae
( ) Myroxylon peruiferum

( ) Neochevalierodendron stephanii
( ) Neodunnia atrocyanea
( ) Neoharmsia madagascariensis
(-) Newtonia buchananii
(-) Newtonia hildebrandtii
( ) Notodon gracilis
( ) Notospartium glabrescens
( ) Oddoniodendron micranthum
( ) Oleiocarpon panamense
(+) Olneya tesota
(+) Ormosia coccinea
( ) Ormosia hosei
(+) Ormosia krugii
(+) Ormosia monosperma
(+) Ostryoderris gabonica
(+) Ostryoderris stuhlmannii
(+) Ougeinia oojeinensis
( ) Oxystigma mannii
( ) Oxystigma msoo
( ) Pachyelasma tessmannii
( ) Pahudia galedupa
(-) Pahudia rhomboidea
( ) Paloue guianensis
( ) Paloveopsis emarginata
( ) Panurea longifolia
( ) Paramachaerium schomburgkii
(-) Paramacrolobium coeruleum
(+) Parapiptadenia rigida
(+) Parasponia andersonii
(+) Parasponia parviflora
(+) Parasponia rugosa
(+) Parkia africana
(+) Parkia biglandulosa
( ) Parkia biglobosa
( ) Parkia clappertoniana
( ) Parkia filicoidea
(+) Parkia javanica
( ) Parkia platycephala
(+) Parkia roxburghii
(+) Parkia speciosa
( ) Parkia timoriana
(+) Parkinsonia aculeata
( ) Parkinsonia africana
( ) Pellegriniodendron diphyllum
( ) Peltogyne catingue
( ) Peltogyne densiflora
( ) Peltogyne excelsa
( ) Peltophorum adnatum
( ) Peltophorum dasyrrhachis
(-) Peltophorum pterocarpum

( ) Peltophorum vogelianum
( ) Pentaclethra eetveldeana
(+) Pentaclethra macroloba
( ) Pentaclethra macrophylla
(+) Pericopsis angolensis
(+) Pericopsis elata
( ) Pericopsis mooniana
( ) Petaladenium urceoliferum
(+) Phyllocarpus riedelii
( ) Phyllocarpus septentrionalis
( ) Phylloxylon xiphoclada
( ) Phylloxylon xylophylloides
( ) Pictetia aculeata
(-) Piliostigma malabaricum
( ) Piliostigma reticulatum
(-) Piliostigma thonningii
( ) Piptadenia excelsa
( ) Piptadenia macrocarpa
( ) Piptadenia paraguaynensis
(+) Piptadenia stipulacea
( ) Piptadeniastrum africanum
(+) Piscidia piscipula
(+) Pithecellobium adinocephalum
( ) Pithecellobium arboreum
(+) Pithecellobium arboreum
(+) Pithecellobium avaremoto
(+) Pithecellobium caraboboense
(+) Pithecellobium cauliflorum
(+) Pithecellobium collinum
(+) Pithecellobium dulce
( ) Pithecellobium flexicaule
(-) Pithecellobium jiringa
(+) Pithecellobium lanceolatum
( ) Pithecellobium lobatum
(+) Pithecellobium multiflora
( ) Pithecellobium racemosa
( ) Plagiosiphon discifer
( ) Plathymenia reticulata
( ) Platycelyphium cyananthum
( ) Platycyamus regnellii
( ) Platycyamus ulei
( ) Platymiscium dimorphandrum
(+) Platymiscium pinnatum
(+) Platymiscium trinitatis
( ) Platymiscium ulei
(+) Platypodium elegans
( ) Platysepalum vanhouttei
( ) Platysepalum violaceum
( ) Podopetalum ormondii
( ) Poecilanthe effusa

Register of nodulation reports for leguminous trees and other arboreal genera with nitrogen fixing members
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( ) Poeppigia procera
( ) Pogocybe entadoides
( ) Polystemonanthus dinklagei
(+) Pongamia pinnata
( ) Prioria copaifera
(+) Prosopis africana
(+) Prosopis alba
(+) Prosopis articulata
(+) Prosopis chilensis
(+) Prosopis cineraria
(+) Prosopis dulcis
(+) Prosopis glandulosa
(+) Prosopis juliflora
(+) Prosopis kuntzeie
(+) Prosopis nigra
(+) Prosopis pallida
(+) Prosopis ruscifolia
(+) Prosopis tamarugo
(+) Prosopis velutina
( ) Pseudosamanea guachapele
(+) Psorodendron spinosum
( ) Pterocarpus angolensis
( ) Pterocarpus blancoi
(+) Pterocarpus echinatus
(+) Pterocarpus indicus
(+) Pterocarpus marsupium
(+) Pterocarpus officinalis
(+) Pterocarpus podocarpus
(+) Pterocarpus rotundifolius
( ) Pterocarpus santaloides
( ) Pterocarpus sericeus
(+) Pterocarpus soyauxii
( ) Pterocarpus stevensonii
(+) Pterocarpus vidalianus
( ) Pterodon emarginatus
(-) Pterogyne nitens
( ) Pynaertiodendron congolanum
( ) Ramorinoa girolae
( ) Recordoxylon amazonicum
(+) Robinia hispida
( ) Robinia neomexicana
(+) Robinia pseudoacacia
(+) Robinia viscosa
(+) Rudolphia volubilis
( ) Sabinea florida
(+) Sabinea punicea
( ) Sakoanala madagascariensis
( ) Samanea pedicellaris
( ) Samanea polycephala
(+) Samanea saman
( ) Samanea saminiqua
(-) Saraca asoca
(+) Saraca declinata
(-) Saraca indica
( ) Saraca palembanica
(-) Saraca thaipingensis
( ) Saraca trianda
( ) Schefflerodendron usambarense
(+) Schizolobium parahyba
( ) Schizoscyphus roseus
( ) Schotia afra
(-) Schotia brachypetala
(-) Schotia capitata
(-) Schotia latifolia
(+) Sclerolobium aureum
( ) Sclerolobium chrysolobium
(+) Sclerolobium micropetalum
( ) Scorodophloeus fischeri
(-) Scorodophloeus zenkeri
( ) Serianthes dilmyi
( ) Serianthes myriadenia
( ) Sesbania aegyptica
(+) Sesbania arborea
(+) Sesbania cinerascens
( ) Sesbania formosa
(+) Sesbania grandiflora
( ) Sesbania punctata
(+) Sesbania roxburghii
(+) Sesbania sesban
(+) Shepherdia argentea
(+) Shepherdia canadensis
( ) Sindora coriacea
( ) Sindora inermis
( ) Sindora intermedia
( ) Sindora javanica
(-) Sindora supa
( ) Sindora wallachii
( ) Sindoropsis le-testui
(+) Sophora chrysophylla
(+) Sophora flavescens
(+) Sophora japonica
( ) Sophora linearifolia
( ) Sophora macrocarpa
(+) Sophora tetraptera
(+) Sophora tomentosa
( ) Sopropis palmeri
( ) Spirotropis longifolia
( ) Stachyothyrsus staudtii
( ) Stahlia maritima
(-) Stahlia monosperma
( ) Steinbachiella leptoclada
( ) Stemonocoleus micranthus
( ) Storkiella vitiensis
( ) Strombocarpa strombulifera
(+) Stryphnodendron adstringens
(+) Stryphodendron barbatimam
( ) Stuhlmannia moavi
( ) Swartzia fistuloides
( ) Swartzia guianensis
(+) Swartzia madagascariensis
(+) Swartzia trinitensis
( ) Sweetia elegans
( ) Sweetia fruticosa
( ) Sweetia nitens
( ) Sweetia panamensis
(+) Sweetia praeclara
( ) Sympetalandra borneensis
( ) Tachigali paniculata
( ) Talbotiella gentii
(-) Tamarindus indica
( ) Terua vallicola
( ) Tessmannia africana
( ) Tessmannia demiflora
( ) Tetraberlinia bifoliolata
( ) Tetrapleura tetraptera
( ) Tetrapteracarpon geayi
(+) Tipuana tipu
(+) Trachylobium verrucosum
( ) Uittienia modesta
( ) Uleanthus erythrinoides
( ) Umtiza listeriana
( ) Uribea tamarindoides
( ) Vatairea guianensis
( ) Vataireopsis araroba
(+) Virgilia capensis
( ) Virgilia divaricata
( ) Vouacapoua americana
(+) Voucapoua pallidior
(+) Wallaceodendron celebicum
( ) Willardia mexicana
( ) Xanthocercis madagascariensis
(+) Xanthocercis zambesiaca
(+) Xeroderris stuhlmannii
( ) Xylia evansii
( ) Xylia ghesquierei
( ) Xylia xylocarpa
( ) Yucaratonia brenningii
( ) Zenia insignis
( ) Zenkerella citrina
( ) Zollernia falcata

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