

Bibliography of systematic and population genetic studies of Bryophytes based on DNA data. II

Bernard GOFFINET*

Department of Ecology and Evolutionary Biology, 75 North Eagleville Road
University of Connecticut, Storrs CT, 06268-3043 USA

(Received 7 March 2003, accepted 15 March 2003)

Abstract — Seventy-three recent studies using characters of DNA sequences to address questions pertaining to the systematics, and population genetics of bryophytes are enumerated¹.

- AKIYAMA, H., & TSUBOTA H., 2001 — *Pseudotrimegistia* H. Akiy. & Tsubota, a new genus of the Sematophyllaceae. *Acta Phytotaxonomica et Geobotanica* 52: 85-95.
- BECKERT S., MUHLE H. PRÜCHNER D., & KNOOP V., 2001 — The mitochondrial *nad2* gene as a novel marker locus for phylogenetic analysis of early land plants: A comparative analysis in mosses. *Molecular Phylogenetics and Evolution* 18: 117-126.
- BIJLSMA R., VAN DER VELDE M., VAN DE ZANDE L., BOEREMA A.C., & VAN ZANTEN B.O. — 2000. Molecular markers reveal cryptic species within *Polytrichum commune* (common hair-cap moss). *Plant Biology* 2: 408-414.
- BLÖCHER R., & CAPESIUS I., 2002 — The systematic position of the Hypopterygiaceae (Bryopsida) inferred from *rps4* gene sequences. *Cryptogamie, Bryologie* 23: 191-207.
- BOISSELIER-DUBAYLE M.C., DE CHALDEE M., GUERIN L., LAMBOURDIERE J & BISCHLER H., 1995 — Genetic variability in western European *Lunularia* (Hepaticae, Lunulariaceae). *Fragmenta Floristica et Geobotanica* 40: 379-391.
- BOISSELIER-DUBAYLE M.C., LAMBOURDIERE J., & BISCHLER H., 2002 — Molecular phylogenies support multiple morphological reductions in the liverwort subclass Marchantiidae (Bryophyta). *Molecular Phylogenetics and Evolution* 24: 66-77.
- CALIE P.J. & MANHART J.R., 1994 — Extensive sequence divergence in the 3' inverted repeat of the chloroplast *rbcL* gene in non flowering land plants and algae. *Gene* 146: 251-256
- CHEN X., ZENG Q. & WOOD A.J., 2002 — *Aldh7B6* encodes a turgor-responsive aldehyde dehydrogenase homologue that is constitutively expressed in *Tortula ruralis* gametophytes. *The Bryologist* 105: 177-188
- FIEDOROW P., ODRZYKOSKI I., SZWEYKOWSKI J. & SZWEYKOWSKA-KULINSKA Z., 2001 — Phylogeny of the European species of the genus *Pellia* (Hepaticae; Metzgeriales) based on the molecular data from nuclear tRNA(CAA)(Leu) intergenic sequences. *Gene* 262: 309-315.

* Correspondence and reprints: goffinet@uconnvm.uconn.edu

¹ The author would appreciate receiving reprints of recent articles that present systematic inferences or population genetic studies based on molecular data in bryophytes. I am grateful to anyone who has send reprints previously.

- FREITAS H. & BREHM A., 2001 — Genetic diversity of the Macaronesian leafy liverwort *Porella canariensis* inferred from RAPD markers. *Journal of Heredity* 92: 339-345.
- GOFFINET B. & SHAW A.J., 2002 — Independent origins of cleistocarp in the Splachnaceae: Analyses of cpDNA sequences reveals polyphyly of the Voitioidae. *Systematic Botany* 27: 203-208.
- GOFFINET B., COX C.J., SHAW A.J. & HEDDERSON T.A., 2001 — The Bryophyta (Mosses): Systematic and evolutionary inferences from a *rps4* gene (cpDNA) phylogeny (cpDNA). *Annals of Botany* 87: 191-208.
- HASHIMOTO K. & SATO N., 2001. — Characterization of the mitochondrial *nad7* gene in *Physcomitrella patens*: Similarity with angiosperm *nad7* genes. *Plant Sciences* 160 (5): 807-815
- HEINRICHS J., 2000 — A taxonomic revision of *Plagiochila* sect. *Hylacoetes*, sect. *Adiantoidae* and sect. *Fuscolutae* in the Neotropics with a preliminary subdivision of neotropical Plagiochilaceae into nine lineages. *Bryophytorum Bibliotheca* 58: 1-184 + 5 appendices.
- HEINRICHS J., GROTH H., HOLZ I., RYCROFT D.S., RENKER C. & PRÖSCHOLD T., 2002 — The systematic position of *Plagiochila moritziana*, *P. trichostoma*, and *P. deflexa* based on ITS sequence variation of nuclear ribosomal DNA, Morphology, and lipophylic secondary metabolites. *The Bryologist* 105: 189-203.
- HEINRICHS J., PRÖSCHOLD T., RENKER C., GROTH H. & RYCROFT D.S., 2002 — *Plagiochila virginica* A. Evans rather than *P. dubia* Lindenb. & Gottsche occurs in Macaronesia; placement in sect. *Contiguae* Carl is supported by ITS sequences of nuclear ribosomal DNA. *Plant Systematics and Evolution* 230: 221-230.
- HENSCHEL K., KOFUJI R., HASEBE M., SAEDLER H., MUNSTER T. & THEISSEN G., 2002 — Two ancient classes of MICK-type MADS-box genes are present in the moss *Physcomitrella patens*. *Molecular Phylogenetics and Evolution* 19: 801-814
- HILU K.W. & LIANG H.P., 1997 — The *matK* gene: Sequence variation and application in plant systematics. *American Journal of Botany* 84: 830-839.
- KABEYA Y., HASHIMOTO K., & SATO N., 2002 — Identification and characterization of two phage-type RNA polymerase cDNAs in the moss *Physcomitrella patens*: Implication of recent evolution of nuclear-encoded RNA polymerase of plastids in plants. *Plant and Cell Physiology* 43: 245-255.
- KAROL K.G., MCCOURT R.M., CIMINO M.T., & DELWICHE C.F., 2001 — The closest living relatives of land plants. *Sciences* 294: 2351-2353
- KRANZ H., SCHOLZ K. & WEISSHAAR B., 2000 — c-MYB oncogene-like genes encoding three MYB repeats occur in all land plant lineages. *Plant Journal* 21: 231-235.
- LAFARGE C., SHAW A.J. & VITT D.H., 2002 — The circumscription of the Dicranaceae (Bryopsida) based on the chloroplast regions *trnL-trnF* and *rps4*. *Systematic Botany* 27: 435-452.
- LUD D., MOERDIJK T.C.W., VAN DE POLL W.H., BUMA A.G.J., HUISKES A.H.L., 2002 — DNA damage and photosynthesis in Antarctic and Arctic *Sanionia uncinata* (Hedw.) Loeske under ambient and enhanced levels of UV-B radiation. *Plant, Cell and Environment* 25: 1579-1589.
- MCLECHIE D.N. & COLLINS A.L., 2001 — Identification of DNA regions specific to the X and Y chromosomes in *Sphaerocarpos texanus*. *The Bryologist* 104: 543-547.
- NICKRENT D.L., PARKINSON C.L., PALMER J.D. & DUFF R.J., 2000 — Multigene phylogeny of land plants with special reference to bryophytes and the earliest land plants. *Molecular Biology and Evolution* 17 (12): 1885-1895.
- PACAK A., FIEDOROW P., DABERT J. & SZWEYKOWSKA-KULINSKA Z., 1998 — RAPD technique for taxonomic studies of *Pellia epiphylla*-complex (Hepaticae, Metzgeriales). *Genetica* 104: 179-187
- PACAK A., FIEDOROW P., DABERT J. & SZWEYKOWSKA-KULINSKA Z., 2002 — Phylogenetic studies of liverworts from the genus *Pellia* using a new type of molecular marker. *Acta Societatis Botanicorum Poloniae* 71: 227-234.
- PACAK A. & SZWEYKOWSKA-KULINSKA Z., 2003 — Organellar inheritance in liverworts: An example of *Pellia borealis*. *Journal of Molecular Evolution* 56: 11-17.

- PEDERSEN N. & HEDENAS L., 2002 — Phylogeny of the Plagiotheciaceae based on molecular and morphological evidence. *The Bryologist* 105: 310-324.
- PFEIFFER T., 2000 — Molecular relationship of *Hymenophyton* species (Metzgeriidae, Hepaticophytina) in New Zealand and Tasmania. Studies in austral temperate rain forest bryophytes 5. *New Zealand Journal of Botany* 38: 415-423.
- PFEIFFER T., KRUIJER H., FREY W. & STECH M., 2000 — Systematics of the *Hypopterygium tamarisci* complex (Hypopterygiaceae, Bryopsida): Implications of molecular and morphological data. Studies in austral temperate rain forest bryophytes 9. *Journal of the Hattori Botanical Laboratory* 89: 55-70.
- PRUCHNER D., NASSAL B., SCHINDLER M. & KNOOP V., 2001 — Mosses share mitochondrial group II introns with flowering plants, not with liverworts. *Molecular Genetics and Genomics* 266: 608-613.
- PRUCHNER D., BECKERT S., MUHLE H. & KNOOP V., 2002 — Divergent intron conservation in the mitochondrial *nad2* gene: Signatures for the three Bryophyte Classes (Mosses, Liverworts, and Hornworts) and the Lycophytes. *Journal of Molecular Evolution* 55: 265-272.
- PRUCHNER D., NASSAL B., SCHINDLER M. & KNOOP V., 2001 — Mosses share mitochondrial group II introns with flowering plants, not with liverworts. *Molecular Genetics and Genomics* 266: 608-613.
- QIU Y.L. & LEE J., 2000 — Transition to a land flora: A molecular phylogenetic perspective. *Journal of Phycology* 36 (5): 799-802.
- QIU Y.L. & PALMER J.D., 1999 — Phylogeny of early land plants: insights from genes and genomes. *Trends in Plant Sciences* 4: 26-30.
- QUANDT D., FRAHM J.-P. & FREY W., 2001 — Patterns of molecular divergence within the palaeoaustal genus *Weymouthia* Broth. (Lembophyllaceae, Bryopsida). *Journal of Bryology* 23: 305-311.
- QUANDT D., TANGNEY R.S., FRAHM J.-P. & FREY W., 2000 — A molecular contribution for understanding the Lembophyllaceae (Bryopsida) based on non coding chloroplast regions (cpDNA) and ITS2 (nrDNA) sequence data. *Journal of the Hattori Botanical Laboratory* 89: 71-92.
- RENKER C., HEINRICHS J., PRÖSCHOLD T., GROTH H. & HOLZ I., 2002 — ITS sequences of nuclear DNA support the generic placement and the disjunct range of *Plagiochila* (*Adelanthus*) *carringtoni*. *Cryptogamie, Bryologie* 23: 23-29.
- SASTAD S.M., STENOIEN H.K., FLATBERG K.I. & BAKKEN, 2001 — The narrow endemic *Sphagnum troendelagicum* is an allopolyploid derivative of the widespread *S. balticum* and *S. tenellum*. *Systematic Botany* 26: 66-71.
- SCOTT K.M. & CRANDALL-STOTLER B., 2002. — RAPD polymorphism as an indicator of population structure, breeding system, and speciation in *Fossombronia*. *The Bryologist* 105: 225-232.
- SKOTNICKI M.L., NINHAM J.A. & SELKIRK P.M., 2000 — Genetic diversity, mutagenesis and dispersal of Antarctic mosses - a review of progress with molecular studies. *Antarctic Science* 12: 363-373.
- SKOTNICKI M.L., SELKIRK M.P., BROADY P., ADAM K.D. & NINHAM J.A., 2001 — Dispersal of the moss *Campylopus pyriformis* on geothermal ground near the summits of Mount Erebus and Mount Melbourne, Victoria Land. *Antarctic Science* 13: 280-285.
- SKOTNICKI M.L., BARGAGLI R. & NINHA J.A., 2002 — Genetic diversity in the moss *Pohlia nutans* on geothermal ground of Mount Rittmann, Victoria Land, Antarctica. *Polar Biology* 25: 771-777.
- SLOTNICKI M.L., BARGAGLI R. & NINHAM J.A., 2002 — Genetic diversity in the moss *Pohlia nutans* on geothermal ground of Mount Rittman, Victoria Land, Antarctica. *Polar Biology* 25: 771-777.
- SO M.L. & GROLLE R., 2000 — Description of *Plagiochila detecta* sp. nov. (Hepaticae) from East Asia based on morphological and RAPD evidence. *Nova Hedwigia* 71: 387-393.
- SOLTIS P.S., SOLTIS D.E., WOLF P.G., NICKRENT D.L., CHAW S. & CHAPMAN R.L., 1999 — The phylogeny of land plants inferred from 18S rDNA sequences:

- Pushing the limits of rDNA signal? *Molecular Biology and Evolution* 16: 1774-1784.
- SOLTIS E.D. & SOLTIS P.S., 2000 — Contributions of plant molecular systematics to studies of molecular evolution. *Plant Molecular Biology* 42: 45-75.
- SONE T., FIJISAWA M., TAKENADA M., NAGAKAWA S., YAMAOKA S., SKAIDA M., NISHIYAMA R., YAMATO K.T., OHMIDO N., FULKUI K., FUKUZAWA H. & OHYAMA K., 1999 — Bryophyte 5SrDNA was inserted into 45S rDNA repeat units after the divergence from higher land plants. *Plant Molecular Biology* 41: 679-685.
- SPAGNUOLO V., CAPUTO P., COZZOLINO S., CASTALDO R. & DE LUCA P., 1997 — Length polymorphism in the intragenic spacer 1 of the nuclear ribosomal DNA of some Pottiaceae (Pottiales, Musci). *Cryptogamie, Bryologie-Lichénologie* 18: 55-61.
- SPAGNUOLO V., CAPUTO P., COZZOLINO S., CASTALDO R. & DE LUCA P., 1999 — Patterns of relationships in Trichostomoideae (Pottiaceae, Musci). *Plant Systematic and Evolution* 218: 69-79.
- STECH M., ROS R.M. & WERNER O., 2001. — The taxonomic status of *Thamnobryum maderense* (Kind.) Hedenäs (Bryopsida) as inferred from molecular data. *Nova Hedwigia* 72: 251-257.
- STECH M., PFEIFFER T. & FREY W., 2002 — Molecular generic classification of the Hypopterygiaceae (Bryopsida) with the description of a new genus, *Arbusculohypopterygium* gen. nov. Studies in austral temperate rain forest bryophytes 10. *New Zealand Journal of Botany* 40 (2): 207-221.
- STECH M. & FREY W., 2001 — CpDNA-relationship and classification of the liverworts (Hepaticophytina, Bryophyta). *Nova Hedwigia* 72: 45-58.
- STECH M. & FRAHM J.P., 2001 — The systematic position of *Ochyraea tatrensis* (Hypnobartlettaceae, Bryopsida) based on molecular data. *The Bryologist* 104: 199-203.
- STECH M. & FRAHM J.P., 2001 — *Palustriella pluristratosa* spec. nov. (Amblystegiaceae, Bryopsida), a new aquatic moss species with pluristratose lamina from Switzerland. *Botanica Helvetica* 111: 139-150.
- STENOIEN H.K. & FLATBERG K.I., 2000 — The narrow endemic *Sphagnum troendelagicum* is an allopolyploid derivative of the widespread *S. balticum* and *S. tenellum*. *The Bryologist* 103: 794-801.
- STENOIEN H.K., 1999 — Protocols for DNA isolation and random amplified polymorphic DNA (RAPD) analysis on *Sphagnum*. *Lindbergia* 24: 43-47.
- SZWEYKOWSKA-KULINSKA Z., PACAK A., JANKOWIAK K., 2002 — New DNA markers for discrimination between closely-related species and for the reconstruction of historical events; An example using liverworts. *Cellular and Molecular Biology Letters* 7(2A): 403-416.
- TSUBOTA H., AKIYAMA H., YAMAGUCHI T. & HIGUCHI M., 2001 — Molecular phylogeny of the Sematophyllaceae (Hypnales, Musci) based on chloroplast *rbcL* sequences. *Journal of the Hattori Botanical Laboratory* 90: 221-240.
- TURMEL M., EHARA M., OTIS C., LEMIEUX C., 2002 — Phylogenetic relationships among streptophytes as inferred from chloroplast small and large subunit rRNA gene sequences. *Journal of Phycology* 38: 364-375.
- VAN DER VELDE M., 2000 — Genetic Structure of the Moss Genus *Polytrichum*. Ph.D. thesis, University of Groningen.
- VAN DER VELDE M., VAN DER STRATE H.J., VAN DE ZANDE L. & BIJLSMA R., 2000 — Isolation and characterization of microsatellites in the moss species *Polytrichum formosum*. *Molecular Ecology* 9: 1678-1680.
- VAN DER VELDE M. & BIJLSMA R., 2000 — Amount and structure of intra- and interspecific genetic variation in the moss genus *Polytrichum*. *Heredity* 85: 328-337.
- VAN DER VELDE M., DURING H.J., VAN DE ZANDE L. & BIJLSMA R., 2001 — The reproductive biology of *Polytrichum formosum*: Clonal structure and paternity revealed by microsatellites. *Molecular Ecology* 10: 2423-2434.

- VAN DER VELDE M. & BIJLSMA R., 2001 — Genetic evidence for the allodiploid origin of the moss species *Polytrichum longisetum*. *Plant Biology* 3: 379-385.
- VAN DER VELDE M., VAN DE ZANDE L. & BIJLSMA R., 2001 — Genetic structure of *Polytrichum formosum* in relation to the breeding system as revealed by microsatellites. *Journal of Evolutionary Biology* 14: 288-295.
- VANDERPOORTEN A. & TIGNON M., 2000 — Amplified Fragments Length Polymorphism between populations of *Amblystegium tenax* exposed to contrasting water chemistry. *Journal of Bryology* 22: 57-62.
- VANDERPOORTEN A., SHAW A.J. & GOFFINET B., 2001 — Testing controversial alignments in *Amblystegium* and related genera (Amblystegiaceae: Bryopsida). Evidence from rDNA ITS sequences. *Systematic Botany* 26: 470-479.
- VANDERPOORTEN A., HEDENAS L., COX C.J. & SHAW A.J., 2002 — Phylogeny and morphological evolution of the Amblystegiaceae. *Molecular Phylogenetics and Evolution* 23: 1-21.
- WANG T., ZHU J.-M., Fan G.-K. & Li X.-Y. 2000 — PCR-RFLP analysis of *rbcL* gene in some bryophyte. *Acta Botanica Boreali-Occidentalia Sinica* 20: 968-973.
- WITHEY A., 1996 — Phylogenetic studies of the Spiridentaceae (Musci): Observations of three morphological characters associated with pleurocarpy. *Anales del Instituto de Biología de la Universidad Autónoma de México, Serie Botánica* 67: 5-14.
- YATSENTYUK S. P., 2001 — Molecular Phylogeny of the Bryophyta and Lycopodiophyta, according to results from some sequences of chloroplast DNA. Ph.D. Dissertation. Moscow State University.