

Dendrobium huoshanense chloroplast DNA, complete genome

GenBank: LC269310.1

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LOCUS LC269310 148590 bp DNA circular PLN 24-MAY-2019
DEFINITION Dendrobium huoshanense chloroplast DNA, complete genome.
ACCESSION LC269310
VERSION LC269310.1
KEYWORDS .
SOURCE chloroplast Dendrobium huoshanense
ORGANISM [Dendrobium huoshanense](#)
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliopsida; Liliopsida; Asparagales;
Orchidaceae;
Epidendroideae; Malaxideae; Dendrobiinae; Dendrobium.
REFERENCE 1
AUTHORS Jiajia,P.
TITLE Authenticate of Dendrobium huoshanense
JOURNAL Unpublished
REFERENCE 2 (bases 1 to 148590)
AUTHORS Jiajia,P.
TITLE Direct Submission
JOURNAL Submitted (10-MAY-2017) Contact:Pan Jiajia Nanjing Normal
University, Department of Biology; Wenyuan, Nanjing 0210000, China
FEATURES Location/Qualifiers
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/organelle="plastid:chloroplast"
/mol_type="genomic DNA"
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[misc_feature](#) 1..84694
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VTSSLIRETTENESANEGYRFGQEEETYNIVA AHGYFGR LIFQYASFNNRSRLHFFLA
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[tRNA](#) complement (6683..6754)
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[CDS](#)

complement (join (11794..12203, 13148..13292))

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complement (13431..13676)

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[CDS](#)

complement (13431..13676)

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[CDS](#)

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[CDS](#)

complement (15454..16164)

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/gene="rpoC1"

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[CDS](#)

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[gene](#)

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complement(23558..26770)
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[CDS](#)

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[gene](#) 36198..36386
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[gene](#) complement (42719..44691)
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[CDS](#) complement (join (42719..42871,43617..43846,44568..44691))
 /gene="ycf3"
 /codon_start=1
 /transl_table=[11](#)
 /product="photosystem I assembly protein Ycf3"
 /protein_id="[BBK09512.1](#)"
 /translation="MPRSRINGNFIDKTSSIVANILLRIIPTTSGEKKAFTYYRDGMS
 AQSEGNIAEALQNYEATRPEIDPYDRSYILYNIGLIHTSNGEHTKALEYYFRALERN
 PFLPQAFNNMAVICHYRGEQAI IQGDSEIAEAWFDQAAEYWKQAIALTPGNYIEAHNW
 LKITRRFE"
[gene](#) 45251..45337
 /gene="trnS-GGA"
[tRNA](#) 45251..45337
 /gene="trnS-GGA"
 /product="tRNA-Ser"
[gene](#) complement (45643..46248)
 /gene="rps4"
[tRNA](#) complement (45643..46248)
 /gene="rps4"

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/feature "30S ribosomal protein S4"
  gene complement (46594..46666)
  /gene="trnT-UGU"
  tRNA complement (46594..46666)
  /gene="trnT-UGU"
  /product="tRNA-Thr"
  gene order (47343..47377,48178..48227)
  /gene="trnL-UAA"
  tRNA join (47343..47377,48178..48227)
  /gene="trnL-UAA"
  /product="tRNA-Leu"
  gene 48629..48701
  /gene="trnF-GAA"
  tRNA 48629..48701
  /gene="trnF-GAA"
  /product="tRNA-Phe"
  misc_feature complement (49355..49804)
  /note="ndhJ"
  /pseudogene="unknown"
  gene complement (order (50553..50589,51171..51209))
  /gene="trnV-UAC"
  tRNA complement (join (50553..50589,51171..51209))
  /gene="trnV-UAC"
  /product="tRNA-Val"
  gene 51385..51457
  /gene="trnM-CAU"
  tRNA 51385..51457
  /gene="trnM-CAU"
  /product="tRNA-Met"
  gene complement (51643..52047)
  /gene="atpE"
  CDS complement (51643..52047)
  /gene="atpE"
  /codon_start=1
  /transl_table=11
  /product="ATP synthase CF1 epsilon chain"
  /protein_id="BBK09513.1"
  /translation="MTLNLCVLTPNRMIWDSKVKEIILSTNSGQIGILPNHAPIATAV
DIGLLRIRLNDRWLTVALMGGFARISNNEITILGNGAEISTDIDPQEAQQTLEIAEAN
LSRAEGKRQAIEANLALRRARTRVEAVKVISY"
  gene complement (52044..53540)
  /gene="atpB"
  CDS complement (52044..53540)
  /gene="atpB"

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/codon_start=1
/transl_table=11
/product="ATP synthase CF1 beta chain"
/protein_id="BBK09514.1"
/translation="MRSNPTTSDPVVSTLEEQLGRIAQIIGPVLDVIFPPGKMPNIY
NALVIKSRDTFGQQINVTCEVQQLLGNNRVRAVAMSATDGLMRGMKVIDTGAPLSVPV
GGATLGRIFNVLGEPVDNLGPVDTRTTSPIHRSAPAFIQLDTKFSIFETGIKVVDLLA
PYRRGGKIGLFGGAGVGKTVLIMELINNIKAHGGVSVFGGVGERTREGNDLYMEMKE
SGVINEKNIAESKVALVYGQMNEPPGARMRVGLTALTMAEYFRDVNEQDVLLFIDNIF
RFVQAGSEVSALLGRMPSAVGYQPTLSTEMGSLQERITSTKEGSITSIQAVYVPADDL
TDPAPATTFAHLDATTVLSRGLAAKGIYPAVDPLDSTSTMLQPRIVGEEHYETAQRVK
QTSQRYKELQDIIAILGLDELSEEDRLTVARARKIERFLSQPFFVAEVFTGSPGKYVG
LAETIRGFQFILSGELDGLPEQSFYLVGNIDEATAKAMNLEESKLLK"
gene 54557..55996
/gene="rbcL"
CDS 54557..55996
/gene="rbcL"
/codon_start=1
/transl_table=11
/product="ribulose-1,5-bisphosphate carboxylase/oxygenase
large subunit"
/protein_id="BBK09515.1"
/translation="MSCREGLMSPQTETKASVGFKAGVKDYKLTYYPDYETKDTDIL
AAFRVTPQPGVPPEEAGAAVAEESSTGTWTTYKGRCYHIEVVLGEEHQYIAYVAYPLD
LFEEGSVTNMFTSIVGNVFGFKALRALRLEDLRIPTSYSKTFQGPPHGIQVERDKLNK
YGRPLLGCTIKPKLGLSAKNYGRAVYECLRGGLDFTKDDENVNSQPFMRWRDRFLFCA
EAI FKAQAETGEIKGHYLNATAGTCEEMIKRAVFARELGVPIMVMDYLTGGFTANTSL
AHYCRDNGLLLHIHRAMHAVIDRQKNHGMHFRVLAKALRMSGGDHIHAGTVVGKLEGE
REMTLGFVDLLRDDFIEKDRSGIFFTQDWVSMPGVLPVASGGIHVWHMPALTEIFGD
DSVLQFGGGTLGHPWGNAPGAVANRVSLEACVQARNEGRDLAREGNDIIREAAKWSPE
LAAACEVWKEITFEFEPVDKVDKVDKETK"
gene 56828..58276
/gene="accD"
CDS 56828..58276
/gene="accD"
/codon_start=1
/transl_table=11
/product="acetyl-CoA carboxylase carboxyl transferase"
/protein_id="BBK09516.1"
/translation="MEKCWFNSMLSNKKLEHRCGLSKSMDSLDALGHTSGSEETILND
AEKKITSWHSFSSNMNYLNYLFDSRNFWSLISDHTFLVRNSNGDTSSVYFDIENQIF
DIYNASSSLSELEILFPSYLNSGSNSNYYYYYSMYDTQSNWNNHINSCIDSYLRFEI
SLKSDIYSGIDSYISSFICTESISSIESGNSSIKTSSSSFNIRERSNDLDRNTKYKQL
WVQCENCYGLNYKKSFSKMNICEHCGYHLKMSSSDRIELFIDPGTWEPMDMDMVSMD

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PIEFHSEEEPYIDRISFYQRKTGLTEAVQTGVGQLNSIPIAIGVMDFQFMGGSMGSVV
GEKITRLIEYATNRSPLVIIVCASGGARMQEGSLSLMQMAKISSASYDYQSKKKLFYV
SILTSPTTGGVTASFGLGDIIEAEPNAYIAFAGKRVIEQTLKKTVPDGSQAAYLFL
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[gene](#)

59045..59155
/gene="psaI"

[CDS](#)

59045..59155
/gene="psaI"
/codon_start=1
/transl_table=11
/product="Photosystem I reaction center subunit VIII"
/protein_id="BBK09517.1"
/translation="MIDLNFPSIFVPLVGLVFPAIAMASLSLYVQRNKIV"

[gene](#)

59548..60102
/gene="ycf4"

[CDS](#)

59548..60102
/gene="ycf4"
/codon_start=1
/transl_table=11
/product="Photosystem I assembly protein ycf4"
/protein_id="BBK09518.1"
/translation="MNRSEHIWIELITGSRKTSNFCWACILFLGSLGFLVVGTS
SYLGNLISVFPQQILFFPQGIVMSFYGIAGLFISSYLWCTISWNVSGYDRFDRKEGIM
SLFRWGFPGRNRRIFLRFLLKDIQSIRMEVREGLFPRRVLYMEIRGQGAIPLTRDEN
LTPREIEQKAAELAYFLRVPIEVF"

[gene](#)

60828..61517
/gene="cemA"

[CDS](#)

60828..61517
/gene="cemA"
/note="Chloroplast envelope protein"
/codon_start=1
/transl_table=11
/product="envelope membrane protein"
/protein_id="BBK09519.1"
/translation="MKKKKALASLPYLVLSILFLPWWVSLSFKKCLETWVLNWWNTRQS
EILLNDIQEKNVLEKFMEELEELFLLEDEMIKEYSETHMQRLRIGMHKETIQLVQRHNS
HFHIILHFSTNLICFAILSGYFFLGNEELFILNSWIQEFLYNLSDTIKAFSILLVTDL
WIGFHSTHGELMIGSIYNDFGLAQNDQIISGLVSTFPVILDTIVKYWIFHFLNRVSP
SLVVIYHSMNE"

[gene](#)

61753..62715
/gene="petA"

[CDS](#)

61753..62715
/gene="petA"
/codon_start=1

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/transl_table=11
/product="cytochrome f"
/protein_id="BBK09520.1"
/translation="MQNRKTFSWVKEQMTRSIYVSIMYIAITRASISNAYPIFAQQGY
ENPREATGRIVCANCHLANKPVDIEVPQAVLPDTVFEAVVRIPYDMQLKQVLANGKKG
ALNVGAVLILPEGFELAPPDRISPEMKEKMGNLSFQFYRPNKRNLVIGPVPQGKYSE
IVFPILSPDPATKKDVHFLKYPIYVGGNRGRGQIYPDGSKSNNTVYNATSAGIVSRIA
RKEKGGYEITIVDASEGRQVVDIIPPGPELLVSEGESIKLDQPLTSNPNVGGFGQGDA
EIVLQDPLRVQGLLLFLASVILAQIFLVLKKKQFEKVQLYEMNF"
gene      complement(63725..63847)
/gene="psbJ"
CDS       complement(63725..63847)
/gene="psbJ"
/codon_start=1
/transl_table=11
/product="photosystem II protein J"
/protein_id="BBK09521.1"
/translation="MADTTGRIPLWLIGTVTGITVIGLIGIFFYGSYGLGSSL"
gene      complement(63968..64084)
/gene="psbL"
CDS       complement(63968..64084)
/gene="psbL"
/codon_start=1
/transl_table=11
/product="photosystem II protein L"
/protein_id="BBK09522.1"
/translation="MTQSNPNEQNVELNRTSLYWGLLLIFVLAVLFSNYFFN"
gene      complement(64107..64226)
/gene="psbF"
CDS       complement(64107..64226)
/gene="psbF"
/codon_start=1
/transl_table=11
/product="cytochrome b559 beta chain"
/protein_id="BBK09523.1"
/translation="MTIDRTYPIFTVRWLAVHGLAVPTVSFLGSISAMQFIQR"
gene      complement(64237..64488)
/gene="psbE"
CDS       complement(64237..64488)
/gene="psbE"
/codon_start=1
/transl_table=11
/product="cytochrome b559 alpha chain"
/protein_id="BBK09524.1"

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/translation="MSGSTGERSFADIITSIRYWVIHSITIPSLFIAGWLFVSTGLAY
DVFGSPRPNEYFTESRQGIPLITGRFDSLEQLDEFKSKSF"
gene      65643..65738
          /gene="petL"
CDS       65643..65738
          /gene="petL"
          /codon_start=1
          /transl_table=11
          /product="cytochrome b6-f complex subunit VI"
          /protein_id="BBK09525.1"
          /translation="MPILTSYFGFLLAASTITPALFIGLNKIRLI"
gene      65928..66041
          /gene="petG"
CDS       65928..66041
          /gene="petG"
          /codon_start=1
          /transl_table=11
          /product="cytochrome b6-f complex subunit V"
          /protein_id="BBK09526.1"
          /translation="MIEVFLFGIVLGLIPITLTGLFVTAYLQYRRGDQLDL"
gene      complement (66160..66233)
          /gene="trnW-CCA"
tRNA      complement (66160..66233)
          /gene="trnW-CCA"
          /product="tRNA-Trp"
gene      complement (66402..66475)
          /gene="trnP-UGG"
tRNA      complement (66402..66475)
          /gene="trnP-UGG"
          /product="tRNA-Pro"
gene      66816..66944
          /gene="psaJ"
CDS       66816..66944
          /gene="psaJ"
          /codon_start=1
          /transl_table=11
          /product="photosystem I reaction center subunit IX"
          /protein_id="BBK09527.1"
          /translation="MRDIKTYLSTAPVLTTLWFGSLAGLLIEINRLFPDALSFPFF"
gene      67548..67748
          /gene="rpl33"
CDS       67548..67748
          /gene="rpl33"
          /codon_start=1

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/product="50S ribosomal protein L33"
/protein_id="BBK09528.1"
/translation="MAKGKDIRIIVILECTCCVRKGVNKESPGISRYITQKNRHNTPN
RLEFRKFCRYCQKYTIHGEIKK"
gene      67940..68245
          /gene="rps18"
CDS       67940..68245
          /gene="rps18"
          /codon_start=1
          /transl_table=11
          /product="30S ribosomal protein S18"
          /protein_id="BBK09529.1"
          /translation="MDKSKQPFRKSKRSFRRRLPPIGSGDRIDYRNMSLISRFLSEQG
KILSRRTNRLTLKQQRLITIAIKQARILSSLPFRNNEKQLERVESIPRTTGPRTKNK"
gene      complement(68506..68880)
          /gene="rp120"
CDS       complement(68506..68880)
          /gene="rp120"
          /codon_start=1
          /transl_table=11
          /product="50S ribosomal protein L20"
          /protein_id="BBK09530.1"
          /translation="MTRVKRGYTARRRRKKIRLFASTFIGAHSRLTRTTQQRMRALV
SSHRDRSRKKRDFRRLWITRINAVTREDRIFYSYSLFIHNLYKRQLLLNRKILAQIAL
SNKNCFDIISNKIKYKSNKIKE"
gene      complement(69640..69753)
          /gene="5' rps12"
misc_feature complement(69640..69753)
          /gene="5' rps12"
gene      complement(69908..72135)
          /gene="clpP"
CDS       complement(join(69908..70138,70809..71100,72065..72135))
          /gene="clpP"
          /codon_start=1
          /transl_table=11
          /product="clpP-like protease"
          /protein_id="BBK09531.1"
          /translation="MPIGVPKVPFRSPGEEDA AWVDVYNRLHRERLLFLGQEV DSEIS
NQLVGLMVYLSIEDDTRDLYLFINS PGGWVIPGIAIYDTMQFVSPDVHTICMGLAASM
GSFILVGGEITKRLAFPHARVMIHQPASSFYEAQAGEFILEAEELLKLR ETLTKVYVQ
RTGNPLWVISEDMERDV FMSATEAQAHGIVDLVAVEN"
gene      72742..74196
          /gene="psbB"

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CDS 72742..74196
 /gene="psbB"
 /codon_start=1
 /transl_table=11
 /product="photosystem II p680 chlorophyll A apoprotein"
 /protein_id="BBK09532.1"
 /translation="MGLPWYRVHTVVLNDPGRLLSVHIMHTALVSGWAGSMALYELAV
 FDPSPVLDPMWRQGMFVIPFMTRLGITNSWGGWSISGGTITNPGIWSYEGVAGAHIL
 FSGLCFLAAIWHWVYWDLEIFCDERTGKPSLDLPKIFGIHLFLSGVACFGFGAFHVTG
 LYGPGIWVSDPYGLTGKVQSVNPAWGAEGFDPFVPGGIASHHIAAGTLGILAGLFHLS
 VRPPLAAFVVGATMWTGSATTPIELFGPTRYQWDQGYFQQEIYRRVGAGLAENLSLSE
 AWSKIPEKLAFYDYIGNNPAKGGLFRAGSMDNGDGIAGVWLGHPIFRDKEGRELFVRR
 MPTFFETFPVVLVDGDGIVRADVPFRRAESKYSVEQVGTVEFYGGELNGVIYSDPAT
 VKKYARRAQLGEIFELDRATLKSDGVFRSSPRGWFTFGHATFALLFFFGHIWHGARTL
 FRDVFAGIDPDLDAQVEFGAFQKLGDPPTTRQVV"

gene 74613..74714
 /gene="psbT"

CDS 74613..74714
 /gene="psbT"
 /codon_start=1
 /transl_table=11
 /product="photosystem II protein T"
 /protein_id="BBK09533.1"
 /translation="MEALVYTFLLVSTLGIIFFAIFFREPPKVPTKK"

gene complement (74783..74914)
 /gene="psbN"

CDS complement (74783..74914)
 /gene="psbN"
 /codon_start=1
 /transl_table=11
 /product="photosystem II protein N"
 /protein_id="BBK09534.1"
 /translation="METATLVAISISGLLVSTGYALYTAFGQPSQKLRDPFEEHGD"

gene 75026..75247
 /gene="psbH"

CDS 75026..75247
 /gene="psbH"
 /codon_start=1
 /transl_table=11
 /product="photosystem II 10 kDa phosphoprotein"
 /protein_id="BBK09535.1"
 /translation="MATKTVESSRSRGPRTGVGSLLKPLNSEYGVAPGWGTTPLMG
 VAMALFAIFLSIILEIYNSSVLLDGISMN"

gene order (75424..75429,76159..76800)

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/ gene="petB"
CDS      join(75424..75429,76159..76800)
/ gene="petB"
/ codon_start=1
/ transl_table=11
/ product="cytochrome b6"
/ protein_id="BBK09536.1"
/ translation="MSKVYDWFEEERLEIQAIADDITSKYVPPHVNIIFYCLGGITLTCF
LVQVATGFAMTFYYRPTVTEAFSSVQYIMTEANFGWLIRSVHRWSASMMVLMMLHVF
RVYLTGGFKKPRELTWVTGVVLAVLTASFGVTGYS�PRDQIGYWAVKIVTGVPEAIP
IGSPLVELLRGSASVGQSTLTRFYSLHTFVLPLLTAVFMLMHFSMIRKQGISGPL"
gene      order(76986..76993,77855..78338)
/ gene="petD"
CDS      join(76986..76993,77855..78338)
/ gene="petD"
/ codon_start=1
/ transl_table=11
/ product="cytochrome b6-f complex subunit IV"
/ protein_id="BBK09537.1"
/ translation="MGVTKKPDNDPVLRAKLAKGMGHNYGEPAWPNDLLYIFPVVI
LGTIACTVGLAVLEPSMIGEPADPFATPLEILPEWYFFPVFQILRTVPNKLLGVLLMV
SVPIGLLTVPFLENVNKFQNPFRRPVATTVFLIGTAVALWLIGIGATLPIEKS�TLGLF
QID"
gene      complement(78518..79537)
/ gene="rpoA"
CDS      complement(78518..79537)
/ gene="rpoA"
/ codon_start=1
/ transl_table=11
/ product="DNA-directed RNA polymerase alpha chain"
/ protein_id="BBK09538.1"
/ translation="MVREEVAGSTRTLQWKCVESRVDSKRLYYGRFVLSPLMKGQAYT
IGIAMRRALLGEIEGTYITRAKSENVLHEYSTIAGIEESVHEILINLKEIVLRNLYG
VRDASICVRGPKYITAQDIISPSPSVEIVDTTQHIANLTEPIDLCIELQIKRDRGYRMK
STNDSHDGSYPIDIVSMPVRNANHSHSYGNGNEKQEILFLEIWTNGSLTPKEALYEA
SRNLIDLLIPFLHAEEDMNFKENENRWNLPFQDRFTNLKKNKKGIPLTCIFIDQ
SELSSRTYNCLKRSNIHTLLDLSHSQEDLMKMEDFRIEDVKQILGTQKHFAINLPK
KKFSF"
gene      complement(79621..80037)
/ gene="rps11"
CDS      complement(79621..80037)
/ gene="rps11"
/ codon_start=1
/ transl_table=11

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/product="30S ribosomal protein S11"
/protein_id="BBK09539.1"
/translation="MTKPIAKIGLRKNARIGSNKNERRIPKGVIVHVQASFNNITIVTVT
DVRGRVSWASAGTSGFRGTRKGTPTYAAQAAAFNAIRTLVDQGMQRAEVMIKGPGLGR
DAALRAIRRNGLLSFVRDVTMPHNGCRPPKRRV"
gene      complement(80196..80309)
          /gene="rp136"
CDS       complement(80196..80309)
          /gene="rp136"
          /codon_start=1
          /transl_table=11
          /product="50S ribosomal protein L36"
          /protein_id="BBK09540.1"
          /translation="MKIRASVRKICEKCRLIRRRGRIIVICSNPRHKQRQG"
gene      complement(80426..80659)
          /gene="infA"
CDS       complement(80426..80659)
          /gene="infA"
          /codon_start=1
          /transl_table=11
          /product="Initiation factor 1"
          /protein_id="BBK09541.1"
          /translation="MKEQKLIHEGLITESLPNGMFRVRLDNEDLILGYISGRIRRSFI
RILPGDRVKIEMSRYDSTRGRIIYRLRKDSND"
gene      complement(80773..81168)
          /gene="rps8"
CDS       complement(80773..81168)
          /gene="rps8"
          /codon_start=1
          /transl_table=11
          /product="30S ribosomal protein S8"
          /protein_id="BBK09542.1"
          /translation="MGRDIIADIITSIRNADIDQKGRVQIVSTNITKNIVKILLREGF
IENVRKHQESKKDFLVTLRHRKTRKGNKMILKRISRPLRIYSNYQRIPKILGGMGI
VILSTSRGIMTDREARLEKIGGEILCYIW"
gene      complement(81393..81761)
          /gene="rp114"
CDS       complement(81393..81761)
          /gene="rp114"
          /codon_start=1
          /transl_table=11
          /product="50S ribosomal protein L14"
          /protein_id="BBK09543.1"
          /translation="MIQPQTLLNVADNSGAQELMCIRIIGTGNHRYAHIGDVIVAVIK

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EAVPNMPLERSEIIRAVIVRTCKELKRDNGMIIRYDDNAAVIIDQEGNPKGTRIFGAI
ARELRQLNFTKIVSLAPEVL"

[gene](#)

complement(81898..83474)
/gene="rpl16"

[CDS](#)

complement(join(81898..82296,83466..83474))
/gene="rpl16"
/codon_start=1
/transl_table=11
/product="50S ribosomal protein L16"
/protein_id="BBK09544.1"
/translation="MLSPKRTFRKQHRGRMGISCRGNHICFGRYALQALEPAWITA
RQIEAGRRAMTRYARRGGKIWVRIFPDKPVTVRPTETRMGSGKGSPEYWVSVVKPGRI
LYEMSGVSETVAKTAMEIAACKMPIRTQFVISG"

[gene](#)

complement(83665..84321)
/gene="rps3"

[CDS](#)

complement(83665..84321)
/gene="rps3"
/codon_start=1
/transl_table=11
/product="30S ribosomal protein S3"
/protein_id="BBK09545.1"
/translation="MGQKINPLGFRLGTTQSHHSFWFAKPKNFSKGLQEDERIRNCIK
DYVKKNKRISSGFEGIAIYIVIQKRIDLIVIIYIGFPNLLIEGRTRGIEELQMNVDKE
FHSVNRRLNIAITRIEKPYQPNI LAEYIALQLKNRVSFRKAMKKAIELTEQTGTGKI
QVQIAGRIDGKEIARVEWIREGRVPLQTIRAKIDHCSHTIRTIIYGVLGIKIWIWFVNQE
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[gene](#)

complement(84366..84731)
/gene="rpl22"

[CDS](#)

complement(84366..84731)
/gene="rpl22"
/codon_start=1
/transl_table=11
/product="50S ribosomal protein L22"
/protein_id="BBK09546.1"
/translation="MIKNENSDREKVLAQHICMSVFKARRVIDQIRGRSYEETLMIL
ELMPYRASYPILKLVYSAAANASHNMGLNEADLFISKAENVNRGAIVKKLRPRARGRSY
LIKKTTCHIKIFLKEKSKF"

[repeat region](#) 84695..110660

/rpt_type=inverted

[gene](#)

complement(84941..85219)
/gene="rps19"

[CDS](#)

complement(84941..85219)
/gene="rps19"
/codon_start=1

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/transl_table=11
/protein_id="BBK09547.1"
/translation="MTRSLKKNPFVANHLAGRIEKLNRREEKEIIVTWSRASTIIPTM
IGHTIAIHNGKEHLPIYITDRMVGHKLGFEFAPTLTFVRHARNDNKSRR"
gene      85343..85416
/gene="trnH-GUG"
tRNA      85343..85416
/gene="trnH-GUG"
/product="tRNA-His"
gene      complement(85460..86944)
/gene="rpl2"
misc_feature complement(join(85460..85890,86554..86944))
/gene="rpl2"
gene      complement(86963..87232)
/gene="rpl23"
CDS       complement(86963..87232)
/gene="rpl23"
/codon_start=1
/transl_table=11
/product="50S ribosomal protein L23"
/protein_id="BBK09548.1"
/translation="MDGIKYAVFTEKSIRLLGNNQYTSNVESGSTRTEIKHWVELFFG
VKVIAMNSHRLPGKGRRMGHTMHYRRMIITLQPGYSIPPLIEKRT"
gene      complement(87398..87471)
/gene="trnI-CAU"
tRNA      complement(87398..87471)
/gene="trnI-CAU"
/product="tRNA-Ile"
gene      87540..94421
/gene="ycf2"
CDS       87540..94421
/gene="ycf2"
/codon_start=1
/transl_table=11
/product="Ycf2"
/protein_id="BBK09549.1"
/translation="MKRHQFKSWIFELREILREIKNSHYFLDSWIKFDSVGSFTHIFF
HQERFMKLFDPRIWSILLSRDSQGATSNRYFTIKGVLLVVVVLISRINNREMERKD
LYLMGLLPIPMNSIGPRKETLEESFWSSNRNRLIVSLLYLPKRKKISESCFMDPQEST
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FLSYTDDPIRKDHDWELFDRLSPRKKRNIINLNSGQLFEILGKDLICYLMSAFREKRP
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[CDS](#)

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