

DETECTION AND CHARACTERISATION OF LITTLE CHERRY VIRUS-1 IN LOCAL SLOVAK CHERRY GERmplasm

BENEDIKOVÁ Daniela¹, PREDAJŇA Lukáš², GLASA Miroslav²

¹National Agriculture and Food Centre, Research Institute of Plant Production, Piešťany, Slovakia

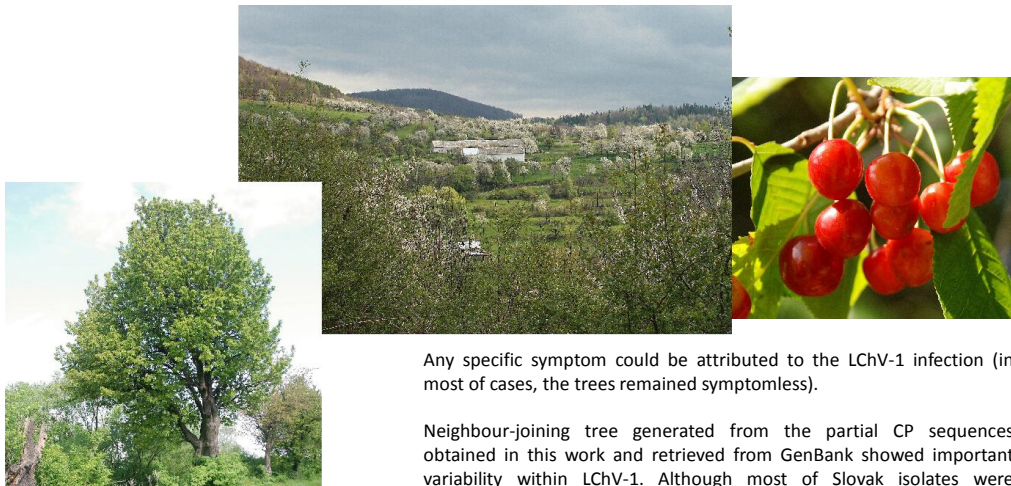
²Institute of Virology, Slovak Academy of Sciences, Bratislava, Slovakia

Protection against harmful agents is an inseparable part of the intensive fruit-growing. Viruses present an important risk factor for the cherry production because of their hardly controlled dissemination and impossibility of direct treatment of viral diseases.

Little cherry virus-1 (LChV-1) belongs to the *Ampelovirus* genus and his etiology is not yet completely understood. Typically, the fruits of infected trees are small, angular, failing to develop acceptable organoleptic properties and thus unmarketable. The information on the LChV genetic diversity in the European region is still scarce, therefore the absence of molecular data may complicate the development of polyvalent detection test [1-3]. The virus was recently detected in Czech Republic and Poland, which prompted the survey of its potential incidence in Slovakia.

The leaf samples were obtained in 2014 from sweet cherry trees in several regions of Slovakia (Brdarka, Nitra, Krakovany, Podolie, Dechtice, Piešťany, Bratislava), during the local cherry germplasm survey and characterisation.

Total RNAs were extracted from leaves using the NucleoSpin RNA Plant kit (Macherey-Nagel). Random primer-synthesized cDNA was used for amplification of the partial capsid protein (CP) gene (456 bp) using proofreading Takara Ex Taq polymerase (Takara) and primers 1LC_12776F: 5'TCAAGAAAAGTTCTGGTGTGC3' (sense) and 1LC_13223R: 5'CGAGCTAGACGTATCAGTATC3' (antisense). PCR amplification was performed under the following cycling conditions: initial denaturation at 94°C for 5 min; 35 cycles of 94°C for 30 s, 53°C for 30 s, and 72°C for 45s; followed by a final extension step at 72°C for 10 min. PCR products generated from 9 sweet cherry LChV-1 isolates were directly sequenced. Sequence analyses were performed using MEGA v.5. or DnaSP v.5 programs.



Multiple alignment of the deduced partial CP amino acid sequences of LChV-1 isolates characterised in this study and their comparison with available European isolates

Accession	Sequence
NC_001836	MSGGTGLPAMTDAALVDTLSLQDTTTLASRGLASLSPFVVEIKVDMGQVTVLLEAFRDRGVEE
JX2591
EJ714600
EJ715099
ZAG69153
SK1044
SK1048
SK1049
SK1050
SK1051
SK1052
SK1053
SK1054
SK1055
SK1056
SK1057
SK1058
SK1059
SK1060
SK1061
SK1062
SK1063
SK1064
SK1065
SK1066
SK1067
SK1068
SK1069
SK1070
SK1071
SK1072
SK1073
SK1074
SK1075
SK1076
SK1077
SK1078
SK1079
SK1080
SK1081
SK1082
SK1083
SK1084
SK1085
SK1086
SK1087
SK1088
SK1089
SK1090
SK1091
SK1092
SK1093
SK1094
SK1095
SK1096
SK1097
SK1098
SK1099
SK1100
SK1101
SK1102
SK1103
SK1104
SK1105
SK1106
SK1107
SK1108
SK1109
SK1110
SK1111
SK1112
SK1113
SK1114
SK1115
SK1116
SK1117
SK1118
SK1119
SK1120
SK1121
SK1122
SK1123
SK1124
SK1125
SK1126
SK1127
SK1128
SK1129
SK1130
SK1131
SK1132
SK1133
SK1134
SK1135
SK1136
SK1137
SK1138
SK1139
SK1140
SK1141
SK1142
SK1143
SK1144
SK1145
SK1146
SK1147
SK1148
SK1149
SK1150
SK1151
SK1152
SK1153
SK1154
SK1155
SK1156
SK1157
SK1158
SK1159
SK1160
SK1161
SK1162
SK1163
SK1164
SK1165
SK1166
SK1167
SK1168
SK1169
SK1170
SK1171
SK1172
SK1173
SK1174
SK1175
SK1176
SK1177
SK1178
SK1179
SK1180
SK1181
SK1182
SK1183
SK1184
SK1185
SK1186
SK1187
SK1188
SK1189
SK1190
SK1191
SK1192
SK1193
SK1194
SK1195
SK1196
SK1197
SK1198
SK1199
SK1200
SK1201
SK1202
SK1203
SK1204
SK1205
SK1206
SK1207
SK1208
SK1209
SK1210
SK1211
SK1212
SK1213
SK1214
SK1215
SK1216
SK1217
SK1218
SK1219
SK1220
SK1221
SK1222
SK1223
SK1224
SK1225
SK1226
SK1227
SK1228
SK1229
SK1230
SK1231
SK1232
SK1233
SK1234
SK1235
SK1236
SK1237
SK1238
SK1239
SK1240
SK1241
SK1242
SK1243
SK1244
SK1245
SK1246
SK1247
SK1248
SK1249
SK1250
SK1251
SK1252
SK1253
SK1254
SK1255
SK1256
SK1257
SK1258
SK1259
SK1260
SK1261
SK1262
SK1263
SK1264
SK1265
SK1266
SK1267
SK1268
SK1269
SK1270
SK1271
SK1272
SK1273
SK1274
SK1275
SK1276
SK1277
SK1278
SK1279
SK1280
SK1281
SK1282
SK1283
SK1284
SK1285
SK1286
SK1287
SK1288
SK1289
SK1290
SK1291
SK1292
SK1293
SK1294
SK1295
SK1296
SK1297
SK1298
SK1299
SK1300
SK1301
SK1302
SK1303
SK1304
SK1305
SK1306
SK1307
SK1308
SK1309
SK1310
SK1311
SK1312
SK1313
SK1314
SK1315
SK1316
SK1317
SK1318
SK1319
SK1320
SK1321
SK1322
SK1323
SK1324
SK1325
SK1326
SK1327
SK1328
SK1329
SK1330
SK1331
SK1332
SK1333
SK1334
SK1335
SK1336
SK1337
SK1338
SK1339
SK1340
SK1341
SK1342
SK1343
SK1344
SK1345
SK1346
SK1347
SK1348
SK1349
SK1350
SK1351
SK1352
SK1353
SK1354
SK1355
SK1356
SK1357
SK1358
SK1359
SK1360
SK1361
SK1362
SK1363
SK1364
SK1365
SK1366
SK1367
SK1368
SK1369
SK1370
SK1371
SK1372
SK1373
SK1374
SK1375
SK1376
SK1377
SK1378
SK1379
SK1380
SK1381
SK1382
SK1383
SK1384
SK1385
SK1386
SK1387
SK1388
SK1389
SK1390
SK1391
SK1392
SK1393
SK1394
SK1395
SK1396
SK1397
SK1398
SK1399
SK1400
SK1401
SK1402
SK1403
SK1404
SK1405
SK1406
SK1407
SK1408
SK1409
SK1410
SK1411
SK1412
SK1413
SK1414
SK1415
SK1416
SK1417
SK1418
SK1419
SK1420
SK1421
SK1422
SK1423
SK1424
SK1425
SK1426
SK1427
SK1428
SK1429
SK1430
SK1431
SK1432
SK1433
SK1434
SK1435
SK1436
SK1437
SK1438
SK1439
SK1440
SK1441
SK1442
SK1443
SK1444
SK1445
SK1446
SK1447
SK1448
SK1449
SK1450
SK1451
SK1452
SK1453
SK1454
SK1455
SK1456
SK1457
SK1458
SK1459
SK1460
SK1461
SK1462
SK1463
SK1464
SK1465
SK1466
SK1467
SK1468
SK1469
SK1470
SK1471
SK1472
SK1473
SK1474
SK1475
SK1476
SK1477
SK1478
SK1479
SK1480
SK1481
SK1482
SK1483
SK1484
SK1485
SK1486
SK1487
SK1488
SK1489
SK1490
SK1491