**Development of microsatellite markers for *Callicarpa subpubescens* (Lamiaceae), an endemic species of the Bonin Islands**

Suzuki Setsuko1\*, Kyoko Sugai2, Kentaro Uchiyama1, Saeko Katoh3, Hidetoshi Kato3, Satoshi Narita4, Yuji Isagi4

1 *Department of Forest Molecular Genetics and Biotechnology, Forestry and Forest Products Research Institute, Forest Research and Management Organization, Matsunosato 1, Tsukuba, Ibaraki 305-8687, Japan*

2 *Institute of Agricultural and Life Sciences, Academic Assembly, Shimane University, 1060 Nishikawatsu-cho, Matsue, Shimane 690-8504, Japan*

3 *Makino Herbarium, Tokyo Metropolitan University, 1-1 Minami-Osawa, Hachioji, Tokyo 192-0397, Japan*

4 *Graduate school of Agriculture, Kyoto University, Kitashirakawa Oiwake-cho, Sakyo-ku, Kyoto 606-8502, Japan*

**\* Corresponding author**:Suzuki Setsuko

E-mail: setsukos@affrc.go.jp, Tel; +81-29-829-8262, Fax; +81-29-874-3720

Electronic supplementary materials

Table S1.　Location and elevation of *Callicarpa subpubescens* and *C. parvifolia* populations used in this study

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Speceis | Localization | Latitude (N) | Longitude 　(E) | Elevation | Sample type | No. sample | Voucher specimen |
| *C. subpubenscens*  | Sekimon in Hahajima Island | 26.67 | 142.15 | 340m | RNA | 1 | HDT-000447 in the herbarium of FFPRI |
| *C. subpubenscens*  | Osawa Coast in Hahajima Island | 26.69 | 142.14 | 70m | DNA | 24 | HDT-000446 in the herbarium of FFPRI |
| *C. subpubenscens*  | Mt. Higashiyama in Hahajima Island | 26.69 | 142.14 | 260m | DNA | 24 | K12-0498 in the herbarium of FFPRI |
| *C. parvifolia* | Anijima Island | 27.12 | 142.21 | 200m | DNA | 16 | Not sampled (Endangered species) |

Table S2.　Blast tophit description of 29 microsatellite markers for *Callicarpa subpubescens*

|  |  |  |  |
| --- | --- | --- | --- |
| Locus | Blast tophit description [organism] | Blast top hit accesion no. | E-value |
| Cal\_0017 | Protein ECERIFERUM 3 [*Sesamum indicum*] | XP\_011079338.1 | 0.0.E+00 |
| Cal\_0157 | - | - | - |
| Cal\_0166 | - | - | - |
| Cal\_0219 | PREDICTED: Aquaporin TIP2-1-like [*Erythranthe guttata*] | XP\_012852687.1 | 9.0.E-149 |
| Cal\_0273 | Uncharacterized protein LOC105161695 [*Sesamum indicum*]  | XP\_011077780.1 | 7.0.E-43 |
| Cal\_0302 | Adenine phosphoribosyltransferase 4 [*Sesamum indicum*] | XP\_011081216.1  | 2.0.E-118 |
| Cal\_0351 | Protein pxr1 [*Sesamum indicum*] | XP\_011070490.1 | 2.0.E-19 |
| Cal\_0419 | Syntaxin-related protein KNOLLE [*Sesamum indicum*] | XP\_011091152.1  | 2.0.E-179 |
| Cal\_0575 | Auxin-induced protein 22D [*Sesamum indicum*] | XP\_011091109.1  | 1.0.E-09 |
| Cal\_0577 | Probable xyloglucan endotransglucosylase/hydrolase protein 28 [*Sesamum indicum*] | XP\_011070536.1 | 1.0.E-28 |
| Cal\_0584 | - | - | - |
| Cal\_0800 | Synaptotagmin-5 [*Sesamum indicum*] | XP\_011078421.1 | 0.0.E+00 |
| Cal\_0804 | - | - | - |
| Cal\_0899 | 60S ribosomal protein L13a-4-like [*Sesamum indicum*] | XP\_011091425.1 | 4.0.E-128 |
| Cal\_0943 | - | - | - |
| Cal\_0952 | PREDICTED: Protein FMP32, mitochondrial-like [*Erythranthe guttata*] | XP\_012853456.1 | 4.0.E-36 |
| Cal\_0962 | PREDICTED: allene oxide cyclase 3, chloroplastic-like [*Erythranthe guttata*] | XP\_012846078.1 | 5.0.E-131 |
| Cal\_1086 | Hypothetical protein MIMGU\_mgv1a024636mg [*Erythranthe guttata*] | EYU32211.1 | 3.0.E-33 |
| Cal\_1090 | PREDICTED: senescence-associated carboxylesterase 101-like isoform X1 [*Nicotiana tabacum*] | XP\_016510827.1 | 0.0.E+00 |
| Cal\_1176 | Hypothetical protein MIMGU\_mgv1a020415mg [*Erythranthe guttata*] | EYU40899.1 | 4.0.E-41 |
| Cal\_1290 | LOW QUALITY PROTEIN: adenine DNA glycosylase [*Sesamum indicum*] | XP\_011080589.2 | 3.0.E-122 |
| Cal\_1353 | protein LHCP TRANSLOCATION DEFECT [*Dorcoceras hygrometricum*] | KZV56417.1 | 1.0.E-85 |
| Cal\_1571 | PREDICTED: pentatricopeptide repeat-containing protein At3g29290 [*Erythranthe guttata*] | XP\_012851374.1 | 0.0.E+00 |
| Cal\_1604 | Lysine histidine transporter-like 8 [*Sesamum indicum*] | XP\_011083786.1 | 0.0.E+00 |
| Cal\_1632 | Cysteine synthase, chloroplastic/chromoplastic isoform X2 [*Sesamum indicum*] | XP\_011073981.1 | 6.0.E-36 |
| Cal\_1639 | Probable NAD(P)H dehydrogenase (quinone) FQR1-like 2 isoform X2 [*Sesamum indicum*] | XP\_020553127.1 | 1.0.E-28 |
| Cal\_1647 | PREDICTED: non-specific lipid-transfer protein-like protein At2g13820 [*Erythranthe guttata*] | XP\_012850747.1 | 2.0.E-39 |
| Cal\_1749 | - | - | - |
| Cal\_1777 | - | - | - |

-, denotes that no blast hits were found.

Table S3 Characteristics of the 29 expressed sequence tagged (EST) nuclear microsatellites in total two populations of *Callicarpa subpubescens* and over all three populations including *C. parvifolia*.

|  |  |  |  |
| --- | --- | --- | --- |
| Locus | *C. subpubenscens* Total(*n* = 48) | 　 | Overall three populations(*n* = 64) |
| *A* | *H*O | *H*E | 　 | *A* | *H*O | *H*E |
| Cal\_0017 | 18 | 0.83 | 0.87 |  | 23 | 0.81  | 0.91  |
| Cal\_0157 | 2 | 0.44 | 0.46 |  | 2 | 0.44  | 0.50  |
| Cal\_0166 | 6 | 0.52 | 0.56 |  | 6 | 0.47  | 0.51  |
| Cal\_0219 | 4 | 0.29 | 0.62 |  | 4 | 0.22  | 0.52  |
| Cal\_0273 | 2 | 0.00 | 0.49 |  | 3 | 0.04  | 0.46  |
| Cal\_0302 | 3 | 0.42 | 0.40 |  | 4 | 0.46  | 0.42  |
| Cal\_0351 | 4 | 0.67 | 0.57 |  | 5 | 0.63  | 0.62  |
| Cal\_0419 | 1 | 0.00 | 0.00 |  | 1 | 0.00  | 0.00  |
| Cal\_0575 | 3 | 0.00 | 0.57 |  | 4 | 0.07  | 0.59  |
| Cal\_0577 | 4 | 0.60 | 0.49 |  | 4 | 0.48  | 0.43  |
| Cal\_0584 | 8 | 0.52 | 0.69 |  | 8 | 0.42  | 0.65  |
| Cal\_0800 | 6 | 0.50 | 0.73 |  | 8 | 0.61  | 0.75  |
| Cal\_0804 | 13 | 0.32 | 0.61 |  | 14 | 0.25  | 0.49  |
| Cal\_0899 | 5 | 0.60 | 0.66 |  | 5 | 0.47  | 0.68  |
| Cal\_0943 | 3 | 0.00 | 0.62 |  | 3 | 0.00  | 0.60  |
| Cal\_0952 | 4 | 0.60 | 0.58 |  | 6 | 0.56  | 0.56  |
| Cal\_0962 | 5 | 0.52 | 0.58 |  | 5 | 0.59  | 0.61  |
| Cal\_1086 | 2 | 0.00 | 0.49 |  | 4 | 0.05  | 0.47  |
| Cal\_1090 | 2 | 0.02 | 0.02 |  | 3 | 0.05  | 0.08  |
| Cal\_1176 | 3 | 0.57 | 0.64 |  | 3 | 0.52  | 0.63  |
| Cal\_1290 | 6 | 0.45 | 0.44 |  | 6 | 0.45  | 0.44  |
| Cal\_1353 | 1 | 0.00 | 0.00 |  | 3 | 0.05  | 0.05  |
| Cal\_1571 | 14 | 0.58 | 0.89 |  | 15 | 0.67  | 0.88  |
| Cal\_1604 | 3 | 0.17 | 0.16 |  | 3 | 0.13  | 0.12  |
| Cal\_1632 | 5 | 0.24 | 0.71 |  | 6 | 0.27  | 0.68  |
| Cal\_1639 | 4 | 0.33 | 0.32 |  | 4 | 0.28  | 0.27  |
| Cal\_1647 | 3 | 0.32 | 0.54 |  | 3 | 0.30  | 0.51  |
| Cal\_1749 | 1 | 0.00 | 0.00 |  | 1 | 0.00  | 0.00  |
| Cal\_1777 | 6 | 0.60 | 0.63 | 　 | 6 | 0.46  | 0.59  |