

1 **Supplementary Material**

2 **Identification of a Novel Gene Encoding the**
 3 **Specialized Alanine Decarboxylase in Tea (*Camellia***
 4 ***sinensis*) Plants**

5 **Peixian Bai** ^{1,2,†}, **Kang Wei** ^{1,†}, **Liyuan Wang** ^{1,*}, **Fen Zhang** ¹, **Li Ruan** ¹, **Hailin Li** ¹, **Liyun Wu** ¹ and
 6 **Hao Cheng** ^{1,*}

7 ¹ National Center for Tea Improvement, Tea Research Institute Chinese Academy of Agricultural Sciences,
 8 Hangzhou 310008, China; baipeixian2018@outlook.com (P.B.); weikang@tricaas.com (K.W.);
 9 zhangfen2008.cool@163.com (F.Z.); ruanli@tricaas.com (L.R.); lihailin@tricaas.com (H.L.); wuly@tricaas.com
 10 (L.W.); chenghao@tricaas.com (H.C.)

11 ² College of Horticulture and Forestry Science, Huazhong Agricultural University, Wuhan 430070, China;

12 * Correspondence: chenghao@tricaas.com (H.C.); wangly@tricaas.com (L.W.); Tel.: +86-571-866-53-169 (H.C.);
 13 +86-571-866-50-575 (L.W.)

14 † These authors have contributed equally to this work.

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AtSDC1 : MVGSLESdqTLsMATLIEKLDIISDDFDPTAVVTEPLPPPVV-NGIGADRGGGGGGEREMVIGRNHHTSIAVTPPEVNDDEFTGDKE : 85
OsSDC1 : MVGSVGVNG-LVLDLGGAAVAVNGVKGMRPEAVAVAMEVESPP-RPAEEEGEGSPTRREIVLGRNVHTASFAVKPDDA-DEETGERE : 84
OsSDC2 : -----MVLNSEEVSCNDHHQVDVVA-----AAGLQCSGDMLGDKQIVSQIILEGTEDEEPPAEMEAEEKK : 62
OsSDC3 : -----MATFK-EHLQERSAHSIGRWV-----AHGYEDSNFLLT--RITENKMSCEPMTIS-----MLAPTL : 52
CL4912 : MEG-----TVSVLNSVSKVEILSRCFDLITIPPEPLPPVVASNGVAGGPTKRMKEKDIIVLGRNVHTSIAVTPPEVNDDEFTGDKE : 80
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AtSDC1 : AYMASVILARRKTLIVERTNHHIGYPIINDFDYCALCLOHESINNLGDPFTESNYGVHSRQFEVGVLDWDFARLWELEKNEYWGYIT : 171
OsSDC1 : AAMASVIALARRNIVERTNHHIGYPIINDFDYCALCLOHESINNLGDPFTESNYGVHSRQFEVGVLDWDFARLWELEKNEYWGYIT : 170
OsSDC2 : AGISRLNAGVQHIQHSAYHIGYPIINDFDYCALCLOHESINNLGDPFTESNYGVHSRQFEVGVLDWDFARLWELEKNEYWGYIT : 148
OsSDC3 : GTVGRFNE-----ESRTRRNAGYPIINFDYCALCLOHESINNLGDPFTESNYGVHSRQFEVGVLDWDFARLWELEKNEYWGYIT : 132
CL4912 : AFMAGVIVRRKTLIEKTYHIGYPIINDFDYCALCLOHESINNLGDPFTESNYGVHSRQFEVGVLDWDFARLWELEKNEYWGYIT : 166
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AtSDC1 : NCGTEGNLHGILVGREMFPDGLIYASRESHSYVFKAAARMYRMECKVDTLMSGEIDCDLIRKRLANKDRPAIINLVNIGTTVKGAV : 257
OsSDC1 : NCGTEGNLHGILVGREVFPDGLIYASRESHSYVFKAAARMYRMDCKVDTLISGEIDCEEFQRKRLINRDRPAIINLVNIGTTVKGAV : 256
OsSDC2 : SGGTEGNLHGILVGRELFPDGLIYASNSDSHSYVFKAAARMYRVCRIATTVSGEMNVAFLRSKLOHNTSPAIINLVNIGTTVKGAV : 234
OsSDC3 : SGGTEGNMHLGLVGRELFPDGLIYASNSDSHSYVFKAAARMYRVCCKIDTISGEMVAFLRRKRLQNTFRSPAIVNINIGTTVKGAV : 218
CL4912 : NCGTEGNLHGILVGREVFPDGLIYASNSDSHSYVFKAAARMYRMECKVDTLISGEIDCEEFRAKLSNRDRPAIINLVNIGTTVKGAV : 252
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AtSDC1 : DDLDIVIKULEEGGESHDRFYIHCDGALHGLMMPFVKRQPKVTFNKPIGSVSVSGHKFVGCENPCGVVITRLEHI-NRLSSNVEYL : 342
OsSDC1 : DDLDIVIKULEEGGE-KDRFYIHCDGALHGLMMPFVKRQPKVTFNKPIGSVSVSGHKFVGCENPCGVVITRLEHI-NRLSSNVEYL : 340
OsSDC2 : DDIDCIISILEKGGF-QNRYYIHCDGALSGLMMPFVKRQPKVTFNKPIGSVSVSGHKFVGCENPCGVVITRLEHI-A-EVLSIDVEYL : 318
OsSDC3 : DDLDIVIMULEEGGESHDRFYIHCDGALHGLMMPFVKRQPKVTFNKPIGSVSVSGHKFVGCENPCGVVITRIMDINNVMSINIEYL : 303
CL4912 : DDIDIVIKULEEGGESHDRFYIHCDGALHGLMMPFNRCPKRTIFNKPIGSVSVSGHKFVGCENPCGVVITRLEHI-NALSSNVEYL : 337
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AtSDC1 : ASRDATMGSRNGHAPILWYALNRKGYKGECKEYQKCLRNAEYIKDLRLREGISAMINELSSIVVFERPDEDFVRRWQLACQGE : 428
OsSDC1 : ASRDATMGSRNGHAPILWYALNRKGYRGECKEYQKCLRNAEYIKDLRLKRBAGIGAMINELSSIVVFERPDEDFVRRWQLACEGN : 426
OsSDC2 : ASRDATMGSRNGHAPILWYALNRKGYKGLIKEVHICMGNARYEVLKQVGTISASCTNLSNIVVFERPDEDFVRRWQLACEGN : 404
OsSDC3 : SGNRTTAGSRNGHAPILWYALNRKGYNGLQCTVENCLKNACYIALRLREMGVSVLINALSITIVVFERPDEDFVRRWQLACQEK : 389
CL4912 : ASRDATMGSRNGHAPILWYALNRKGEKGECKEYQKCLRNAEYIKDLRLREGISAMINELSSIVVFERPDEDFVRRWQLACEGN : 423
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AtSDC1 : LAHVVMPSVTEKLENFKDIIVKRLIIVYEDGS-QPECLASEVETNNCHGPAHK----- : 482
OsSDC1 : LAHVVMPSVTEKLENFKDIIVKRLIIVYEDGS-QPECLASEVETNNCHGPAHK----- : 482
OsSDC2 : LAHVVMPSVTEKLENFVFEPIAEKRRKDIYQKGFIDICLAVIIEKENCYGNLHAKKLRIPKM : 467
OsSDC3 : LAHVVMPSVTEKLENFKDIIVKRLIIVYEDGS-QPECLASEVETNNCHGPAHK----- : 446
CL4912 : MAHVVMPSVTEKLENFKDIIVKRLIIVYEDGS-QPECLASEVETNNCHGPAHK----- : 478
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Supplementary Figure S1. Multiple alignment of the protein sequence of pCsAlaDC with the characterized SDCs from other species. Identical amino acids are highlighted in black, and similar amino acids are shaded in gray. The conserved substrate binding site, pyridoxal 5'-phosphate binding pocket, and catalytic residue is marked with a, b and c, respectively. The UniProt knowledgebase accession number are as follows: AtSDC1(sp|Q9MA74); OsSDC1(sp|Q6ESZ9); OsSDC2(sp|Q8RV06); OsSDC3(sp|Q7X8D4). *Arabidopsis thaliana*, At; *Oryza sativa*, Os.



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