

Reviewer Report

Title: High quality assembly of the reference genome for scarlet sage, *Salvia splendens*, an economically important ornamental plant

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Reviewer name: Robert van Buren

Reviewer Comments to Author:

Dong et al. provide a near complete reference genome for the ornamental crop *Salvia splendens* using a PacBio sequencing approach. The assembly is high quality and will be useful for the plant comparative genomics community. The approaches and adequate details on the assembly and annotation of this genome are provided. I have a few minor concerns I feel should be addressed before this manuscript is published. The assembly metrics of the *Salvia* genome are exceptionally good and the near completeness of this assembly will make it useful for the comparative genomics community. The scaffolding is potentially problematic given the short read lengths of the Illumina data and the lack of an additional set of PacBio data that was not utilized in the initial assembly. The authors used 4-5 different scaffolding algorithms on the same datasets, potentially introducing errors. Most of these scaffolding and gap filling programs were designed to utilize mate pair data to bridge repeats and not the short insert libraries produced by the authors. The Illumina data could falsely bridge gaps creating chimeric, misassembled scaffolds. Line 162. The aligner used to map the Illumina reads to the *Salvia* genome for Pilon based polishing should be provided. Parameters for Pilon and the number of corrected indels/SNPs should also be listed. Line 216 and Line 225: It is unclear why two different BUSCO datasets were used to verify the completeness of the genome assembly/annotation. It would be interesting to include more downstream comparative genomics analyses for this species, but I suspect this is beyond the scope of this manuscript. The versions of each bioinformatics program should be provided.

Level of Interest

Please indicate how interesting you found the manuscript: An article whose findings are important to those with closely related research interests

Quality of Written English

Please indicate the quality of language in the manuscript: Acceptable

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