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We are facing to the global warming. Fruit yield is deceased under high temperature because of a failure in pollination. To improve fruit yield under harsh environmental conditions, it is needed to understand the mechanism of fruit set. However, its genetic and molecular factors remain poorly understood. Analyzing the mechanism of parthenocarpy, fruit set without pollination, will help to identify the key regulators that control fruit set. A mutant named small parthenocarpic fruit and ower (SPFF) was obtained by -ray irradiation of Micro-Tom seeds. In this study, we aimed to identify and characterize the responsible gene for parthenocarpy in SPFF mutant. First, we characterized the visible phenotypes, size of cells and ploi levels. e characterization of SPFF mutant was male sterility, oral organs dwar sm and parthenocarpic fruits with high ploidy levels. Second, in order to identify the responsible gene for these phenotypes, positional cloning by ne mapping and RNAi strategy were performed. ey allowed us to identify that a loss of function of a gene coding a receptor like kinase (SPFF) triggers parthenocarpy. ird, to analyze the function and characterization of SPFF gene, RNA sequence and in situ hybridization were performed. SPFF expressed higher at receptacle than the other organs including reproductive organs in developing buds. e expression level of cell cycle genes (CDKB) and the gene maintaining stem cell (WUSCHEL) were a ected at developing ovule. According to these results, our research brought a new point of view of the mechanism of fruit set, that they are supposed to be regulated by a receptor like kinase named SPFF. Furthermore, we also brought an idea tha responsible gene for parthenocarpy was expressed in receptacle and supposed to be in vascular bundle although the functi of receptacle and vascular bundle during fruit set in tomato had not been noticed so far.

Biography

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WDNHL KLWRPL #JPDLO

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