



**Additional file 1** Pedigree flow chart. RI93, a selected RIL (recombinant inbred line) of B5; YHY15, a F<sub>2</sub> plant carrying the *BPH15* locus was backcrossed to the susceptible rice TN1 to develop backcross mapping populations; Genotyping BC<sub>1</sub>F<sub>2</sub> and phenotyping their BC<sub>1</sub>F<sub>3</sub> populations map *BPH15* to interval between RM261 and S16; BC<sub>2</sub>F<sub>2</sub> and BC<sub>4</sub>F<sub>2</sub> plants were used to screen recombinants plant between RM261 and S16; BC<sub>2</sub>F<sub>3</sub> of recombinants plants were used to find fixed recombinant plants; BC<sub>2</sub>F<sub>4</sub> of fixed recombinants plants were used to phenotyping. Mentioned in the text were marked in red.