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**Assessment of synthetic hexaploid wheats in response to heat stress and leaf rust infection for the improvement of wheat production**

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**Table S1: Lists of primers used in this study**

<b>Genes</b>	<b>Primer sequences (5'-3')</b>
<i>Actin</i>	F: GGTATCGTTCTCGACTCTGGT R: TTACAATTTCCCGCTCGGCT
<i>TacBM38806</i>	F: ACA AGA ACG ACA AGT GGC AC R: CCG GAT ATC TCG ATG GCC TT
<i>Hsp101b</i>	F: GCT GGA CGT CAT CCT GTC TC R: CCA CCC GCT TCT CGA TCC
<i>TaHsp70.1</i>	F: TTA CCA ACG ACA AGG GTC GG R: AGT TCT CCA GGG CGT TCT TG
<i>Hsp17.3</i>	F: AGA ACG CCG ACA TGG AGA AG R: CAC GAT GCA TCT CAG GCG A
<i>Wrab17</i>	F: GCG AGG CCA TGG GGA A R: CTC CTT GGT GGC ATC GGC A
<i>Wrab18</i>	F: TCG ATT CAT CCA AGC CAG AG R: GTT GGA GGC CAT CTT GTC T
<i>PR-1a</i>	F: TTCATCATCTGCAGCTACAACC R: CGG TAC ATA TAT ACA GCC GGT CTA A
<i>PR-1.1</i>	F: ACT ACG ACT ACG GGT CCA ACA R: TCG TAG TTG CAG GTG ATG AAG
<i>PR-3</i>	F: CGA CGG GAT CAA GTC CCA G R: GCT ATC TCC CTC TTG CCG TC
<i>PR-5</i>	F: ATC ACC AAG GAT TGC CTC AA R: GTG AAG GTG CTG GTC TGG TT
<i>PR-8</i>	F: CAG TCG CTC TTC GAC CAG AT R: TCT TGA CGT CGG TGC TAC CT
<i>PR-9</i>	F: GAG ATT CCA CAG ATG CAA ACG AG R: GGA GGC CCT TGT TTC TGA ATG
<i>atchi1</i>	F: CTGCCGGGGATCTTCATCTT R: TAGTGGTTGGCGACGATCTG
<i>atchi8</i>	F: AATATCATCAACGGCGGGCT R: TGCAGTAGCGCGTGTAGTAG

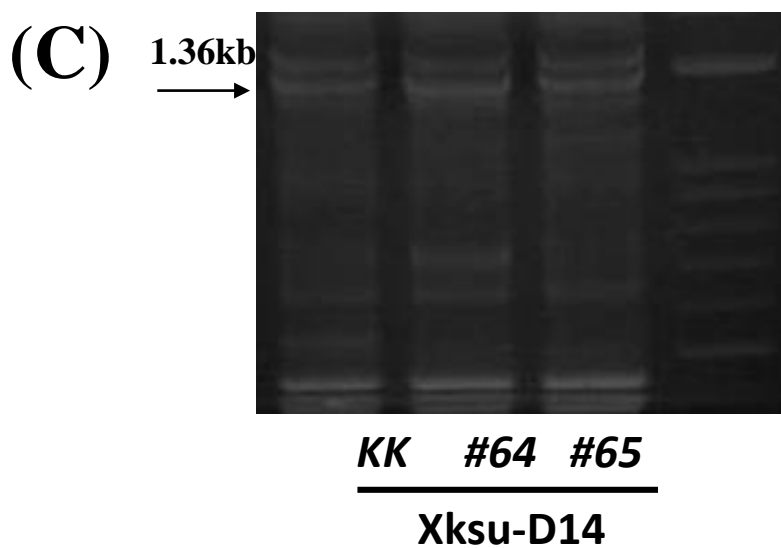
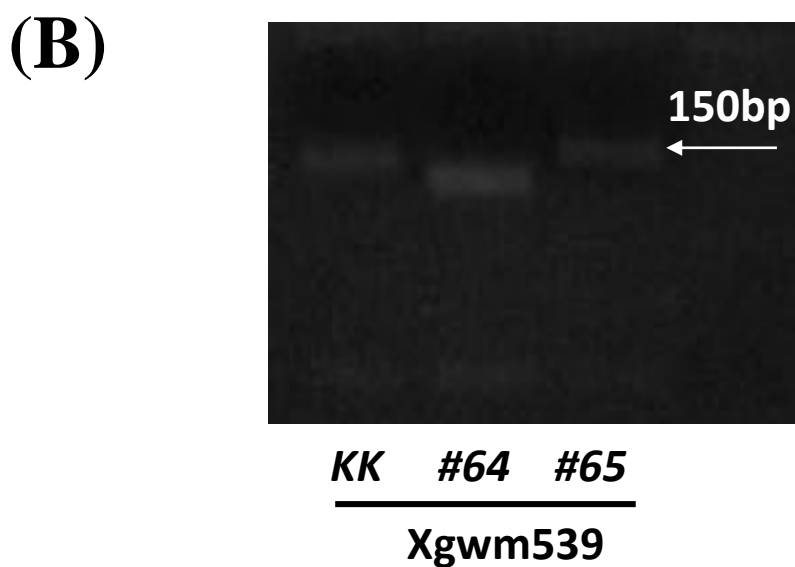
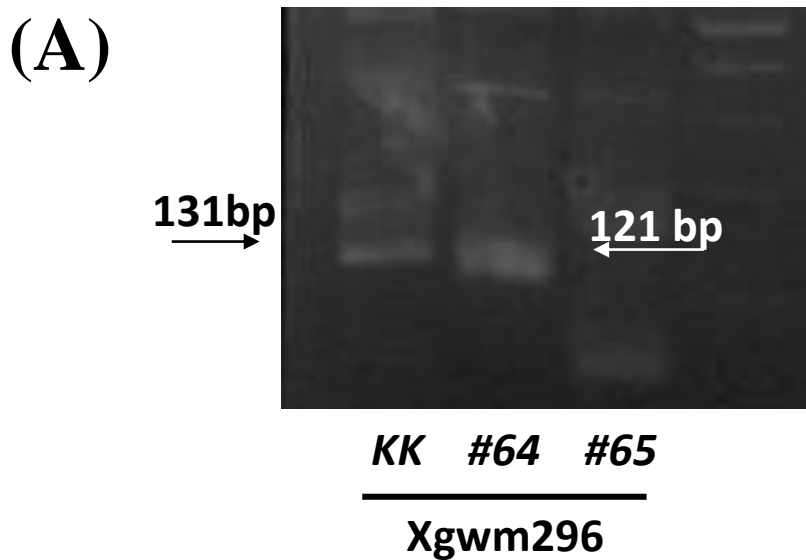
**Table S1 contd.**

<b>Genes</b>	<b>Primer sequences ( 5'-3')</b>
<i>Glu2</i>	F: CAT GGC TAA CAT CTA CCC GTA CCT G: GAA GAG CGC GTA GCT CAT GTC
<i>atpodL</i>	F: CCT TCC GCT CTC GGA TCT AC R: CCG TGT AGT ATG CGT TGT CG
<i>atpod2</i>	F: CCA ATG GGT TCG ACA ACT CC R: GCG CGA TGT TTC CCA TGT TT

**Table S2: List of LR molecular markers used in this study**

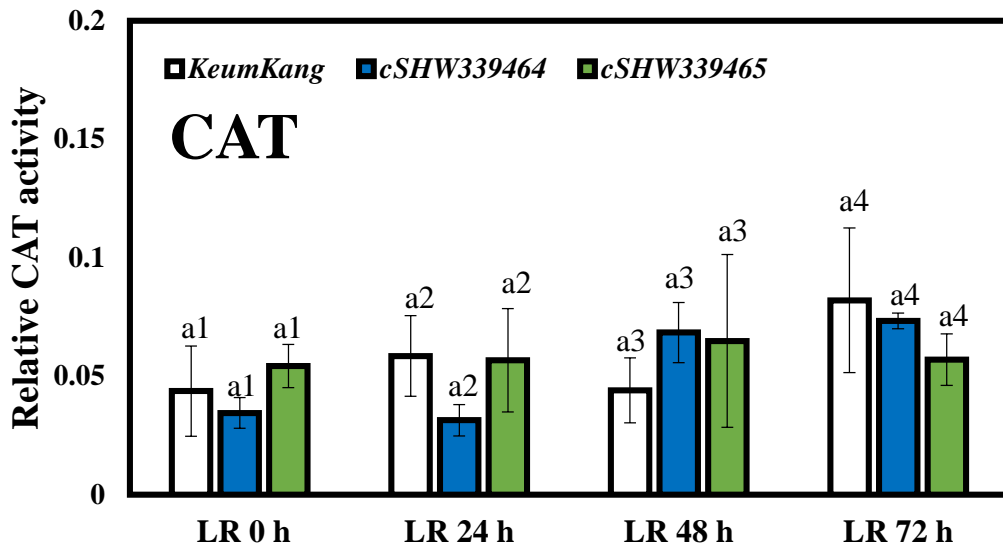
<b>Marker name</b>	<b>Primer sequences (5'-3')</b>
<i>Xgwm296</i>	F: AAT TCA ACC TAC CAA TCT CTG R: GCC TAA TAA ACT GAA AAC GAG
<i>Xgwm539</i>	F: CTG CTC TAA GAT TCA TGC AAC C R: GAG GCT TGT GCC CTC TGT AG
<i>Xksu-D14</i>	F: CGC TTT TAC CGA GAT TGG TC R: CCA AAG AGC ATC CAT GGT GT

Figure S1. Molecular markers of Lr genes: (A) *Xgwm296*, (B) *Xgwm539*, and (C) *Xksu-D14*, in *KeumKang* (KK), *cSHW339464* (#64), and *cSHW339465* (#65).



**Figure S2: The antioxidant enzyme activity of (A) CAT, (B) SOD in response to leaf rust infection at (0, 24, 48, and 72) hpi. Error bars represent the standard deviation of three replicates. Mean values that do not share the same letters (a, b, and c) are considered to show significant difference.**

**(A)**



**(B)**

