**Supplementary table S1. Names and sources of hulless barley varieties**

| Number | Variety name | Variety origin | Drought-resistant ability |
|---|---|---|---|
| YC85 | Zangqing 320 | Lhasa Tibet | no |
| YC88 | Zangqing 2000 | Lhasa Tibet | no |
| ZY1252 | Ziqingke | Lhasa Tibet | yes |
| ZY1100 | Guoluo | Milin Nyingchi | yes |
| ZY97 | Duobujiu | Rikaze Tibet | yes |
| YC83 | Zangqing 148 | Lhasa Tibet | no |
| ZY673 | Naina | Linzhou Lhasa | unknown |
| ZY1403 | Lanqingke | Jiangda Chamdo | unknown |
| KL14 | Kunlun14 | Qinghai | unknown |