Triazine resistance without reduced vigor in germination ability in Echinochloa colona (junglerice)

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According to reports of many researchers triazine resistance reduced fitness in the most resistant weed biotypes. Laboratory studies were conducted to evaluate germination ability and dormancy behavior in three biotypes, one susceptible (53) and two triazine resistant (238/5 and 326/2), of Echinochloa colona (junglerice) in response to temperature ranges. The tested temperatures were {10, 30 and 45 °C constant temperatures} and {30/20 °C alternating day/night temperature with light/dark) with removing seed coat by H₂SO₄ (95-97%) for 10 min. Germination percent (G%) and Germination rate (RS/day) at 10 °C for 238/5, 326/2 and 53 biotypes were 19% and 0.36, 1% and 0.02 and 9% and 0.38, respectively. These parameters were not considerable differences at 30 °C among three biotypes. But, those were 53% and 4.65, 17% and 1.29 and 22% and 1.51 at 45 °C for these biotypes, respectively. The results showed the 238/5 biotype was superior to other biotypes in G% and RS at experimental temperature ranges. When seeds exposed at 35°C without removing their seed coats, the 238/5 biotype was superior in germination percent 55% and germination rate 9.40 to other biotypes, too. In alternative temperature with light/dark regime, also, the 238/5 biotype was superior to other biotypes in G% and RS at 100% and 11. Therefore, we could conclude that the 238/5 resistant biotype is not problematic as compared to resistant and susceptible biotypes in sugarcane fields. In addition, it is likely that resistance to triazine herbicides will increase germination ability of some resistant biotypes.