Transgenic tomato line DR16-75-24 of R₂ generation was used to establish homozygous line of transgenic tomato resistant to TYLCTHV-[2] by selfing in order to produce population from R₁ to R₄ generations. In each generation, the copy number of Rep-DR transgene was analysed by Southern blot hybridization, and the expression of transgene was evaluated by northern blot hybridization and western blot analysis. Whereas, the resistant assay was performed by grafting with TYLCTHV-[2]-infected scion. The results showed that transgenic tomatoes in R₁–R₄ generations were genetically stable with two copies of transgene inserted at the same loci. In addition, the expression of Rep-DR transgene in transgenic tomatoes at RNA level was not different, but the expression of Rep-DR protein was inconclusive. From resistant assay of transgenic tomatoes from R₁ to R₄ generations, resistance to TYLCTHV-[2] was increasing especially in transgenic line 1, 3, 6, 17, 28, 40, 41 and 43 of R₄ generation which both Rep-DR and nptII transgene were not segregated. These transgenic tomatoes could be used in breeding program for tomato resistant to TYLCTHV-[2].