Figure 7. The least costly cophylogenetic scenario between lichen-forming algae (LFA) and their lichen-forming fungi (LFF) hosts, reconstructed using Jane 4.0. The cost regime settings were as follows: cospeciation = 0, duplication = 1, duplication with host switch = 2, losses = 1, and failures to diverge = − 1, corresponding to cost regime E (Table 2). Black branches represent the LFF host phylogeny, and blue branches the LFA parasite phylogeny. The LFF names are in bold. Yellow and red solid circles represent duplications dashed lines with purple circles represent losses, dented lines with black asterisks represent failures to diverge. Habitat information is provided with the LFF species. AR is abbreviated for arctic/alpine or boreal zone, TM is abbreviated for temperate zone, STR is abbreviated for subtropic zone, and TR is abbreviated for tropic zone.