Intraspecific variation of twenty-five accessions of *Andrographis paniculata* Wall. ex Nees, collected from different geographical areas in Thailand and one from Laos, was determined by morphological characters and molecular analysis using RAPD and SSCP techniques. Morphological characters and total lactone content variation was measured at 50% flowering time among the accessions grown under the same environmental condition. UPGMA cluster analysis of the accessions resulted in 4 major groups based on 18 morphological characters while RAPD analysis distinguished 5 groups, using 247 band generated from 14 primer amplifications separated on polyacrylamide gel. Morphological characters and RAPD were incongruent and were not correlated to geographical area of collection and yield of active compound. SSCP analysis showed little polymorphism of specific amplified products. Markers for the CPS1-2, IDH1, IDH2, IPI genes were monomorphic and only 2 alleles were detected for CAT and CPS1-1 gene.