The most abundant conformer of the amino alcohol D-phenylglycinol has been observed in gas phase using broad-band chirped pulse Fourier transform microwave spectroscopy (CP-FTMW) and laser ablation molecular beam Fourier transform microwave spectroscopy (LA-MB-FTMW). The rotational spectra corresponding to seven monosubstituted $^{13}$C, one monosubstituted $^{15}$N and one monosubstituted $^{18}$O species have been observed in their natural abundance, and the $r_g$ structure has been derived. The observed conformer is stabilized by O-H···N, N-H···π intramolecular hydrogen bond network.