The rotational spectra of three very weakly bound complexes, $\text{He}_1$-$\text{C}_5\text{H}_5\text{N}$, $\text{He}_2$-$\text{C}_5\text{H}_5\text{N}$, and $\text{H}_2$-$\text{C}_5\text{H}_5\text{N}$, have been studied using a pulsed molecular beam microwave spectroscopic method. Analysis of the rotational and $^{14}\text{N}$ nuclear quadrupole coupling constants of these complexes shows that all three complexes possess the perpendicular geometric configuration. In this configuration, in the dimer, He and H$_2$ bind above the aromatic plan of C$_5$H$_5$N and are displaced by less than ten degrees away from the $\varepsilon$-axis of the pyridine monomer, toward the nitrogen atom. In the trimer, the second helium atom preferentially binds below the aromatic plan of C$_5$H$_5$N, opposite of the first helium atom. An MP2 $ab\ initio$ interaction potential between He and C$_5$H$_5$N has been generated and the theoretical results are consistent with those from the experiment. The spectra, molecular structures, quadrupole coupling parameters, and interaction potentials will be discussed.

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