A Balle-Flygare FT-MW spectrometer coupled to a laser ablation source has been used to measure the pure rotational spectra of \( \text{H}_2\text{O} \cdots \text{AgF} \). Generation is via laser ablation (532 nm) of a silver rod in the presence of \( \text{SF}_6 \), argon, a low partial pressure of \( \text{H}_2\text{O} \) and the molecules are stabilized by supersonic expansion. The spectra of eight isotopologues have been measured. Rotational constants, \( B_0 \) and \( C_0 \), and the centrifugal distortion constant, \( \Delta J \) have been determined. Isotopic substitutions are available at the silver, oxygen and hydrogen atoms. The spectra are consistent with a linear arrangement of oxygen, silver and fluorine atoms and the structure is either \( C_{2v} \) planar at equilibrium or \( C_5 \) pyramidal but with a low potential-energy barrier to planarity such that the \( v = 0 \) and 1 states associated with the motion that inverts the configuration at the O atom are well separated.