The group IIA metals have stable hypermetallic oxides of the general form MOM. Theoretical interest in these species is associated with the multi-reference character of the ground states. It is now established that the ground states can be formally assigned to the \( \text{M}^+\text{O}^{2-}\text{M}^+ \) configuration, which leaves two electrons in orbitals that are primarily metal-centered \( ns \) orbitals. Hence the MOM species are diradicals with very small energy spacings between the lowest energy singlet and triplet states. Previously, we have characterized the lowest energy singlet transition \( (^1\Sigma_u^+ \leftarrow X^1\Sigma_g^+) \) of BeOBe. In this study we obtained the first electronic spectrum of CaOCa. Jet-cooled laser induced fluorescence spectra were recorded for multiple bands that occurred within the 14,800 - 15,900 cm\(^{-1}\) region. Most of the bands exhibited simple P/R branch rotational line patterns that were blue-shaded. Only even rotational levels were observed, consistent with the expected \( X^1\Sigma_g^+ \) symmetry of the ground state (\(^{40}\text{Ca} \) has zero nuclear spin). A progression of excited bending modes was evident in the spectrum, indicating that the transition is to an upper state that has a bent equilibrium geometry. Molecular constants were extracted from the rovibronic bands using PGOPHER. The experimental results and interpretation of the spectrum, which was guided by the predictions of electronic structure calculation, will be presented.