C_3O IN THE CARBON STAR IRC+10216

EMILY D. TENENBAUM, ALDO J. APPONI and LUCY M. ZIURYS, *Department of Chemistry, Department of Astronomy, and Steward Observatory, University of Arizona, 933 North Cherry Avenue, Tucson, AZ 85721*.

We report the detection of C_3O in the circumstellar envelope of IRC+10216. Five rotational lines of this molecule were observed at 2 and 3 mm using the Kitt Peak 12 m telescope of the Arizona Radio Observatory (ARO). The line profiles were U-shaped, indicating that the molecule is present in the outer shell with a source size $\geq$ 81.6". The derived C_3O column density of 1x10^{12} cm^{-2} is two orders of magnitude larger than the value predicted by the most recent chemical model of IRC+10216 (Millar, Herbst & Bettens 2000). C_3O is the sixth oxygen-bearing molecule that has been identified in IRC+10216, and our observations represent the second astronomical detection of C_3O.