COMPLEX ORGANIC MOLECULES IN HOT CORINOS AND HOT CORES

SANDRINE BOTTINELLI, *Laboratoire d'Astrophysique de l'Observatoire de Grenoble, BP 53, 38041 Grenoble Cedex 9, France, and Institute for Astronomy, University of Hawai'i, 2680 Woodlawn Drive, Honolulu, HI 96822*; CECILIA CECCARELLI, *Laboratoire d'Astrophysique de l'Observatoire de Grenoble, BP 53, 38041 Grenoble Cedex 9, France*; JONATHAN P. WILLIAMS, *Institute for Astronomy, University of Hawai'i, 2680 Woodlawn Drive, Honolulu, HI 96822*; and ROBERTO NERI, *Institut de Radioastronomie Millimétrique (IRAM), 300 rue de la Piscine, 38406 Saint Martin d'Hères, France*.

Although found in large abundances in many massive hot cores, complex organic molecules have only been observed toward two solar-type protostars, IRAS16293–2422 (IRAS16293) and NGC1333-IRAS4A (IRAS4A). Interferometric observations of methyl formate ($\mathrm{HCOOCH_3}$) and methyl cyanide ($\mathrm{CH_3CN}$) towards IRAS16293 showed that these molecules are emitted by two compact ($< 1.5''$, corresponding to a radius of $\sim$120 AU) regions centered on the two components of the binary system, thereby confirming the existence of a hot corino. This result favors the grain mantle evaporation scenario as the formation mechanism for these molecules. However, this is in contradiction with current models, and observations of other low-mass protostars are needed to determine whether IRAS16293 is a particular case. We present recently obtained Plateau de Bure interferometric data of $\mathrm{HCOOCH_3}$ and $\mathrm{CH_3CN}$ towards IRAS4A, the only other hot corino known so far. We compare the chemical conditions observed in this hot corino with those in the hot corino of IRAS16293 and in some of the massive hot cores.