DISTRIBUTION OF SO_2 AND SO IN THE ENVELOPE OF VY-CANIS MAJORIS: INSIGHT INTO CIRCUMSTELLAR SULFUR CHEMISTRY

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Millimeter wave observations of SO_2 and SO in the envelope of the O-rich supergiant VY-Canis Majoris have been conducted with the Submillimeter Telescope (SMT) of the Arizona Radio Observatory, between 210 and 290 GHz. A non LTE radiative transfer code has been written to fit the line profile of 22 lines of SO_2 and 5 transitions of SO, and model their abundance and distribution within the circumstellar envelope. The rotational levels involved span a wide energy range, from 13 cm^{-1} to 104 cm^{-1} for SO_2, and 17 to 40 cm^{-1} for SO. The high number of transitions fitted provides strong constraints on the excitation conditions, hydrogen density and kinetic temperatures. The results will be discussed in relation to the formation processes and chemistry of these two species in O-rich molecular envelopes.