MICROMETEORITES AND ITS RELATION TO DIFFERENT TYPES OF CHONDRITES.

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The extra-terrestrial dust that enter the Earth's atmosphere is anticipated to have a significant contribution from ordinary chondritic precursors, as seen in meteorites, but there is an obvious contradiction that needs to be addressed [1-4]. Ordinary chondrites represent a small contribution to the overall micrometeorite flux in comparison to carbonaceous chondrites which are dominated either by CI and/or CM carbonaceous chondrites [1,2]. Nevertheless, near-Earth asteroid population presents circumstances with sufficient scope for generating dust size in the range of micrometeorites from ordinary chondritic sources. The bulk chemical (major elements) composition of ~5000 micrometeorites collected from Antarctica and deep-sea sediments has shown Mg/Si that is largely dominated by carbonaceous chondrites, and less than 10% in the range of ordinary chondritic precursors [5,6]. Further, the chemical ablation model (CABMOD) data with different initial chondritic compositions such as CI, CV, L, LL, H is studied, and the results visibly point toward high-density (≥2.8 g/cm^3) precursors such as CV and ordinary chondrites with the size range of ~100−700 μm and entering at zenith angle ~0−70^o ablate much faster rate thereby losing its identity of original precursor even before reaching the Earth's surface, and hence are probably under-represented in our collections [6]. Moreover, their ability to survive as micrometeorites remains even bleak for high velocity micrometeoroids that enter >16 km s^{-1}. The elemental ratio for CV and ordinary chondrites precursor variation during entry are similar to each other irrespective of the difference in the initial chemical composition. In conclusion, it is suggested that micrometeorites that belong to ordinary chondritic precursors may not be really irrelevant in upper atmosphere (>150 km above Earth's surface) as they are seen by various micrometeorites collections on the Earth's surface.

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