THE FORMATION OF ULTRAMAFIC NODULES IN ALKALI BASALTOIDS NEAR THE SURFACE

FENOGENOV A.N. Moscow State University, Geological Faculty, Moscow, Russia.

Ultramafic nodules of the green series: dunites, harzburgites, lherzolites, wherlites, and pyroxenites - in alkali basaltoids are traditionally considered to be xenoliths of mantle matter. Some facts contradict to this statement: (1) Nodules belong to the initial stage of the alkali basalt eruption. It means that they are concentrated in the upper part of the magmatic column. It is impossible for the mantle xenoliths because of the various density of nodules and alkali basalt melt. (2) Nodules are characterized by an effective porosity of 2.5-3.5 and even higher that is typical for hypabyssal and subvolcanic rocks; this value for intrusives is 0.1-0.4. (3) Nodules have the concentric structural and textural zonation that reflects their autonomous evolution. (4) Olivine of the nodules sometimes has the prismatic habit (Antarctica, Mongolia) with a length coefficient of up to 5 which provides an evidence for a quick cooling of melt. (5) Nodules in the contact with host basaltoid are surrounded by a thin quenched rim with dendritic phases in the glass. The mentioned facts provide an evidence for the formation of nodules near the surface, but not in the mantle.