The report presents the results of experimental studies of the synthesis of carbon nanostructures in the presence of the plasma component of the working gas, which is supplied to the heated substrate. The structure of the synthesized coating on various substrates is very close to the coatings obtained earlier by the authors during the synthesis of graphene from CO2 gas, namely, to graphene flakes, which are oriented vertically to the substrate. It is important that the [character](https://www.multitran.com/m.exe?s=character&l1=1&l2=2) of the synthesized coating does not depend on the nature of the substrate. To obtain the presented structure, the contribution of the plasma component to the working gas flow (C2H2, CH4) should be roughly ~ 1%.