In this thesis we define the operadic category of simple graphs and study its constant operad. We then construct a discrete operadic fibration from this category to the category of graphs and use it to establish additional properties necessary for the study of Koszulity. We then define the notion of an elementary object of a graded operadic category and investigate these objects in the category of simple graphs. At the end, we prove that the constant operad over simple graphs is not quadratic, therefore it is not Koszul. This is surprising, because the constant operad over any previously known operadic category of graphs is Koszul.