

For a given graph we define the minimum path cover as a minimum cardinality set of vertex disjoint paths covering all the vertices of the graph. This problem is one of the usual generalization of the Hamiltonian path problem. In this thesis we based our work on a paper Corneil et al. (2013) presenting a certifying algorithm for the minimal path cover problem on cocomparability graphs (the complement of graph of strict partial order). We first introduce this algorithm and then we experimentally examine its robustness to five operations on edges and vertices of the graph. We also analyse the impact of these operation on the size of the minimal path cover theoretically.