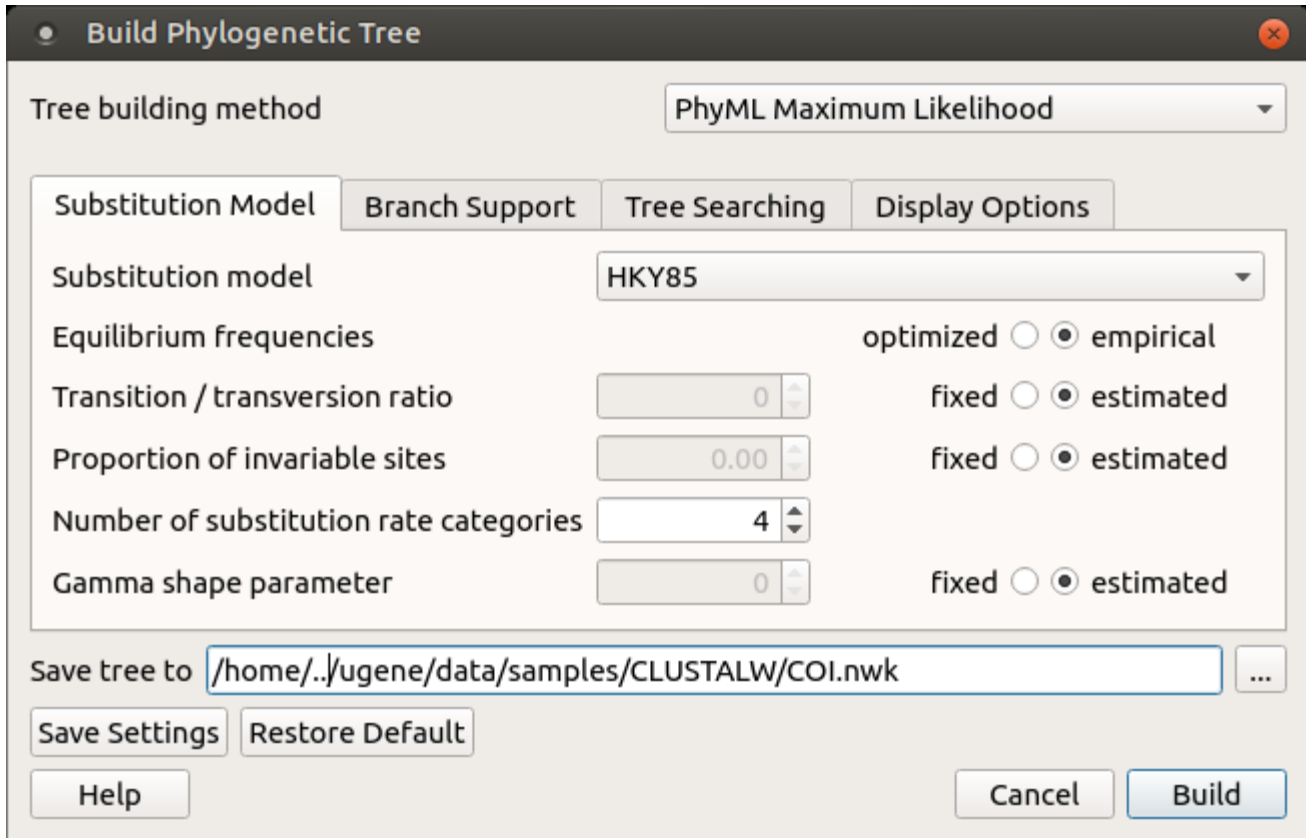


# PhyML Maximum Likelihood

The *Building Phylogenetic Tree* dialog for the *PhyML Maximum Likelihood* method has the following view:



The following parameters are available:

*Substitution model parameters* - a selection of the Markov model of substitution:

*Substitution model* - model of substitution.

*Equilibrium frequencies* - equilibrium frequencies.

*Transition/transversion ratio* - fix or estimate the transition/transversion ratio in the maximum likelihood framework.

*Proportion of invariable sites* - the proportion of invariable sites, i.e., the expected frequency of sites that do not evolve, can be fixed or estimated.

*Number of substitution rate categories* - the number of substitution rate categories.

*Gamma shape parameter* - the shape of the gamma distribution determines the range of rate variation across sites.

*Branch support parameters* - the selection of the method that is used to measure branch support:

*Use fast likelihood method* - use fast likelihood method.

*Perform bootstrap* - the support of the data for each internal branch of the phylogeny can be estimated using non-parametric bootstrap.

*Tree searching parameters* - the selection of the tree topology searching algorithm:

*Make initial tree automatically* - initial tree automatically.

*Type of tree improvement* - type of tree improvement.

*Set number of random starting tree* - the number of random starting tree.

*Optimize tree topology* - the tree topology is optimised in order to maximise the likelihood.

*Optimize branch lengths* - optimize branch lengths.

*Optimize substitution rate* - substitution rate parameters are optimized.

*Display tree in new window* - displays tree in the new window.

*Display tree with alignment editor* - displays tree with alignment editor.

*Synchronize alignment with tree* - synchronize alignment and tree.

*Save tree to - file* to save the built tree.

Press the *Build* button to run the analysis with the parameters selected and build a consensus tree.