Cancer diseases are now the third leading cause of death (20% of all deaths). It is therefore important to find new ways of getting tumor cells effectively and specifically disposed of and a promising path is targeted therapy. One of the most frequently deregulated protooncogenes in cancer is C-MYC, which makes it suitable as an effective target for treatment. However, the development of such targeted active ingredients is very expensive, so in this thesis we investigate natural substances that have been used for the treatment of cancer in ancient China. We examined the substances shikonin, cnicin and artemisinin. The results show that shikonin induces apoptosis of tumor cells by reducing the expression of C-MYC and activating tumor suppressor kinase MST1. Cnicin reduces the expression of C-MYC as well, but activates MST1 only weakly. Artemisinin, on the other hand, increases expression of C-MYC and doesn't activate MST1, thus operates on inducing apoptosis of tumor cells by a completely different mechanism. (In Czech)