Abstract

Fascinating helical polymers in biological systems like DNA and protein performing
different functions always inspired scientists. Synthetic helical polymers have wide
variety of applications in material science. We tried to synthesize a Norbornene based
helical polymer with the help of ring opening metathesis polymerization (ROMP) and
post polymerization functionalization. ROMP using Grubbs catalysts is one of the most
used functional group tolerant living polymerization known. Since organic azides are not
tolerated by ruthenium carbine initiators and non-protected alkynes can slow down the
propagation reaction and lead to broad molecular weight distibutions. Here we report the
polymerization of Norbornene based monomer carrying a trialkylsilyl-protected alkyne
by ROMP. The polymer was obtained in good yield with a low polydispersity index and
high molecular weight. The findings of this studies will contribute to the development of
functional and responsive polymeric systems.