Asymmetric synthesis of new enantiomerically enriched α-amino acids
A.S. Saghyan 1,2, A.F. Mkrtchyan 1,2, Z.Z. Mardiyan 1,2, L.A. Hayriyan 1,2, H.V. Adonts 2
1. Scientific and Production Center ‘‘Armbiotechnology’’ NAS RA,
2. Yerevan State University, Yerevan, Armenia
anna_mkrtchyan@ysu.am

Alkyne-containing amino acids are versatile structures readily available by a number of methods and are accessible using very few transformations from economical starting materials. They can be functionalized by many chemical functions and offer a wide range of possible transformations. Particularly, unsaturated α-amino acids give access to many synthetic applications in all fields of chemistry. Different synthetic approaches have been developed to obtain chiral unsaturated α-amino acids.

Here, we present a stereoselective approach to synthesize unsaturated α-amino acids in optically active form. As a starting amino acid synthon for the asymmetric synthesis of amino acids NiII square-planar complexes of Schiff’s bases of propargylglycine (1) or allylglycine (2) with chiral auxiliary (S)-2-N-(N'-benzyl-prolyl)aminobenzophenone (BPB) were taken (Figure).

As a result, effective methods of synthesis for novel enantiomerically enriched derivatives of (S)-propargylglycine and (S)-allylglycine were developed.

The obtained amino acids and intermediate complexes open a new way to the synthesis of enantiomerically pure amino acids containing practically unlimited number of radicals of different nature attached to the triple C-C bond.

2 Fanelli, R., Jeanne-Julien, L., René, A., Martinez, J., Cavelier, F. Amino Acid., 2015, 47, 1107–1115