

## INVESTIGATION OF SUSPECTED RED HORIZONTAL BRANCH STARS IN THE GALACTIC FIELD

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The chemical composition of 11 suspected RHB stars in the galactic field was recently analyzed using high-resolution spectra obtained with the 6-meter telescope of the Special Astrophysical Observatory, North Caucasus. We summarize here some of the main conclusions obtained from comparison of the abundances of the RHB stars with available abundances of giants and dwarfs (hereafter G and D).

The mean abundance ratios of the  $\alpha$ -process elements (Mg, Si, Ca and Ti) with respect to iron for the RHB stars match the data of G and D fairly well. Quite a large spread of the [Na/Fe] ratio among giants does not allow us to make any definitive conclusion. The sample of metal-deficient RHB stars contains a slight overabundance of oxygen. The overabundance is revealed even better in the ratio of abundances of oxygen and the  $\alpha$ -process elements ( $[O/\alpha] \approx 0.3$ ). A good fit for the iron group elements and for other heavier chemical elements is found. The results for copper and europium supplement the data for G and D in the metallicity range from 0 to -1.

The photospheric abundances in RHB stars reflect both the primordial abundances and the effects of mass loss and mixing during the preceding red giant phase, during the helium flash and during the current core helium burning phase of evolution. The extent to which the surface composition of the RHB stars can be altered is still an open question. We have no results for lithium, carbon and nitrogen abundances in the RHB stars of the galactic field, while it is known that they are good indicators of mixing and mass loss processes in stars. Field RHB star studies are limited to some 60 candidates. The Vilnius medium-band photometric system gives temperatures, surface gravities and metallicities in the presence of any interstellar reddening and is very useful for identification of RHB stars.