The measurement of enzyme activity in dried blood spots (DBS) on filter paper is an alternative for screening of lysosomal storage disorders. The measurement of alpha-L-iduronidase and alpha-D-glucosidase activities is used for the diagnosis of Mucopolysaccharidosis type I and Pompe disease, respectively. The aim of this study was to determine whether the alpha-L-iduronidase and alpha-D-glucosidase activities are stable after three years of storage at 4°C. We measured enzyme activities in DBS immediately after collection (2009) and in 2012 after storage at 4°C by fluorimetry techniques. The activity of alpha-L-iduronidase after three years of storage was 40% of the original. For the alpha-D-glucosidase activity was 36% in 2012. The t test revealed a significant decrease of enzyme activity (p<0.001 for alpha-L-iduronidase and p<0.005 for alpha-D-glucosidase) after three years of storage. So, the decrease in enzyme activity observed after 3 years of storage at 4°C makes the diagnosis of Mucopolysaccharidosis I and Pompe disease impossible, in DBS stored by this time, as could it increase the number of false positive cases.

Keywords: alpha-D-glucosidase alpha-L-iduronidase, dried blood spot on filter paper. Supported by: CNPq.