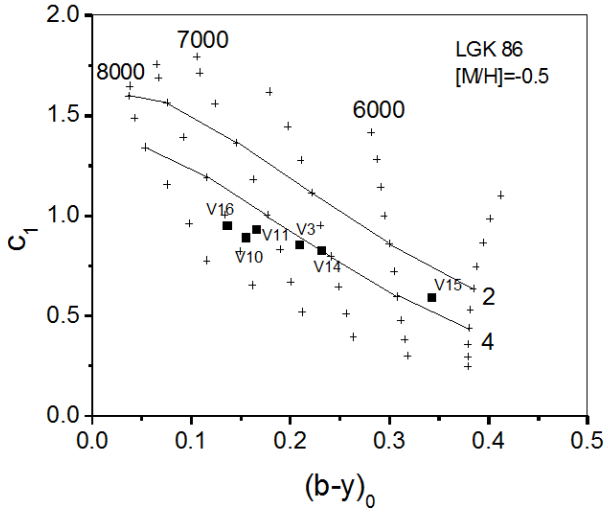

Fig. 6. Location of the δ Scuti stars of NGC 6811 on the theoretical grids of LGK86.

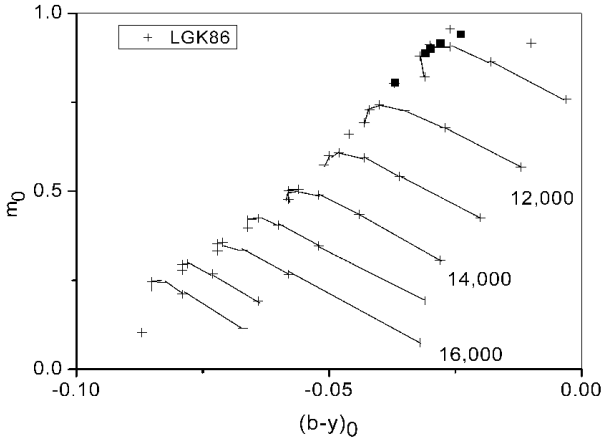

Fig. 7. Location of the hot variable stars of NGC 6811 on the theoretical grids of LGK86.

the derived magnitude of the standard stars vs. reported values in the literature. The average values of such differences are $\Delta(V,\ b-y,\ m_1,\ c_1) = (0.008,\ 0.005,\ -0.004,\ 0.012)$; on most nights at least ten standard stars were observed but this figure increased to 15 on some nights. The number of the whole sample of standards data points, due to the large time span of the season, was considerable, adding up to 80 points of standard stars.

To calculate the propagation of errors for the reddening (in Nissen's 1988 work, § 3), the intrinsic color index $(b-y)_0$ has served to determine the individual color excess, $E(b-y) = (b-y) - (b-y)_0$ and, as in his paper, assuming the photometric mean errors given for our observations, although larger than the work by Nissen (1988), we do expect a mean error $E(b-y)$ close to that derived by Nissen of 0.011 for F stars and of 0.009 for A stars, since our errors are not exceedingly different.

7. DISCUSSION

New $uvby-\beta$ photoelectric photometry has been acquired and is presented for the brightest stars in the direction of two open clusters NGC 6811 and NGC 6830. From the observed stars in the field, some were determined to be early type stars, either B or A. Using the calibrations to determine reddening and distance for these stars, distances for the clusters have been obtained. Unreddened indexes in the LGK86 grids allowed us to determine the effective temperature of the hottest stars and hence, the age of the cluster.

A brief discussion of each cluster is presented. Table 7 lists the previous knowledge and the newly determined characteristics of the clusters.

NGC 6811. Considering the classical UBV photometry compiled for this cluster, very little can be deduced about its properties. No clear distinction in the color-color diagram $B-V$ vs $U-B$ can be drawn; the same conclusion is reached from its HR diagram. From our results we have determined that 37 stars belong to the cluster. Since they are the brightest, the conclusion on the age, which agree with that previously determined, is also correct. We have found that the cluster is farther, its extinction is less and it is younger than previously assumed. The goodness of our method has been previously tested, as in the case of the open cluster Alpha Per (Peña & Sareyan 2006) against several sources which consider proper motion studies as well as results from the Hipparcos and Tycho data bases. Hence, we feel that our results throw new light regarding membership to this cluster.

There have been several previous works in which membership probabilities were considered. Table 8 lists the identification numbers from several studies, namely those of WEBDA, Luo et al. (2009), Sanders (1971), Becker (1947), Barkhatova, Zakharova, & Shashkina (1978) and more recently, the compilation by Kharchenko et al. (2005). We have repeated part of the information on the distance provided in Table 8 in order to support the conclusions based on the last columns of the table, which present the membership probability obtained in the present paper (PP), that of Sanders (1971) and those reported by the compilation of Kharchenko et al. (2005) based on