TABLE 1

OBSERVATIONAL DATA FOR THE SAMPLE OF HGMN STARS

| Parameter | HR 3273 | HR 8118 | HR 8567 | HR 8937 | References |
|---|---|---|---|---|---|
| $B-V$ | −0.08 | −0.08 | −0.04 | −0.10 | R1,R6,R8 |
| $U-B$ | −0.38 | −0.32 | −0.37 | −0.37 | R1,R6 |
| $V$ | 6.42 | 6.76 | 6.36 | 4.37 | R1,R6,R9 |
| $b-y$ | −0.020 | −0.028 | −0.018 | −0.046 | R2 |
| $m_1$ | 0.090 | 0.117 | 0.101 | 0.125 | R2 |
| $c_1$ | 0.710 | 0.801 | 0.678 | 0.677 | R2 |
| $\beta$ | 2.704 | 2.780 | 2.737 | 2.776 | R2 |
| $J$ | 6.515 | 6.848 | 6.410 | 4.477 | R7 |
| $H$ | 6.607 | 6.925 | 6.493 | 4.669 | R7 |
| $K$ | 6.585 | 6.907 | 6.467 | 4.611 | R7 |
| Sp. Type | B9p (HgMn) | B9p Hg(Mn?) | B8(Mn), HgMn | B9.5 IVp (HgMn) | R3,R4,R5 R10, R11 |

References: R1: Cousins & Stoy (1962), R2: Hauck & Mermilliod (1998), R3: Andersen & Nordström (1977), R4: Renson & Manfroid (2009), R5: Wolff & Wolff (1974), R6: Corben & Stoy (1968) , R7: Cutri et al. (2003), R8: Crawford (1963), R9: Corben (1971), R10: Cowley et al. (1969), R11: Houk (1982).

& Allen (1999) found a dependence between MnI and MnII abundances and temperature. The authors suggest that difussion takes place in the atmospheres of these stars, but probably affected by other factors such as rotation and evolutionary state. This research is part of our current program for deriving elemental abundances among field CP stars and members of open clusters. The motivation of our work is to derive abundances for a sample of HgMn stars to determine possible relations with their fundamental parameters and other factors such as rotation, evolutionary state and age. In particular in this paper we report the results of four CP stars of the HgMn class, HR 3273, HR 8118, HR 8567 and HR 8937.

The star HR 3273 was classified as an HgMn star by Andersen & Nordström (1977). They studied ∼70 bright southern stars using coudé spectrograms of 20 Å/mm, taken with the ESO 1.5 m telescope at La Silla, Chile. The authors identified HR 3273 as a B9p (HgMn) star, with no definite variation in their spectra. $UBV$ photoelectric photometry was published by Cousins & Stoy (1962). $uvby-\beta$ photometry was provided by Hauck & Mermilliod (1998), Eggen (1977) and Gronbech & Olsen (1976). $JHK$ infrared photometry was presented by Cutri et al. (2003).

The star HR 8118 was classified as Hg(Mn?) star in the spectroscopic study of the Bright Star Catalogue by Cowley et al. (1968). They identified the line HgII $\lambda\lambda$3984 in the spectra taken at the Yerkes observatory with a dispersion of 125 Å/mm. Then the star was listed and classified as B9p Hg(Mn?) in the study of A bright stars (Cowley et al. 1969). $UBV$ photometry was obtained by Crawford (1963) and Corben (1971). $uvby-\beta$ photometry was published by Gronbech & Olsen (1977) and Hauck & Mermilliod (1998).

The star HR 8567 was classified as HgMn star by Wolff & Wolff (1974). They studied 194 stars of types B4-B9 and identified in their sample 24 HgMn stars. The authors used UV spectrograms with a dispersion of 50 Å/mm in the region 3440–3500 Å. In this spectral range there are several strong lines of MnII. HR 8567 was classified as B8(Mn) star in the catalog of Renson & Manfroid (2009) and listed as HgMn star in the catalog of Schneider (1981). $UBV$ photoelectric photometry was published by Rybka (1969) and Corben & Stoy (1968). $uvby-\beta$ photometry was obtained by Hauck & Mermilliod (1998), Gronbech & Olsen (1976) and Eggen (1977), and $JHK$ infrared photometry was presented by Cutri et al. (2003).

The star HR 8937 was classified as B9p by Bertaud (1958) and then listed as B9.5 IVp (HgMn) in the Michigan Catalogue of Two Dimensional Spectral Types (Houk 1982). $UBV$ photoelectric photometry have been provided by Abt & Golson (1962) and Irwin (1961). $uvby$ photometry was published by Crawford, Barnes, & Golson (1970) and Hauck & Mermilliod (1998), and their $\beta$ photometric index were determined by Strauss & Ducati (1981).