

VARIABILITY OF HBV 475 IN THE NEAR INFRARED

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In the spectral range $\lambda\lambda 5800-8750$, HBV 475 shows important spectral variations between 1969 and 1974. Sometimes the "hot component" spectrum dominates (many emission lines), sometimes the "cool component" is preponderant (many molecular absorption TiO bands) (Andrillat 1973 - Andrillat, Houziaux 1976).

On August 4 1974, June 6 1975 and August 9 1981, we have extended the observations up to 1.1μ (fig.1) (Haute Provence Observatory 193 Telescope - Spectro ROUCAS + Image tube - dispersion $230 \text{ \AA}.\text{mm}^{-1}$).

Some emissions are present :

He I $\lambda 10830$ - He II $\lambda 10123$ - P7 $\lambda 10049$ - O I $\lambda 8446$.

The Ca II triplet $\lambda\lambda 8498-8543-8662$ is not visible on August 9 1981 because it is blended with the strong TiO molecular band $\lambda 8432$.

For the same reason, O I $\lambda 8446$ appears very weak.

At this date, other TiO bands are visible at $\lambda 8868$.

These features are characteristic of M4-M5 spectral type (Andrillat 1981). The near infrared observations confirm the symbiotic nature of HBV 475 and allow to specify the spectral type of the cool component.

It is well known that the spectral type of the hot component is WN5.

There are a few symbiotic stars which have WR stars as their hot components :

AG Peg : WN6 + M3 III

HBV 475: WN5 + M4

RX Pup : WN7-WN8 + M5 - HM Sge : WN5 + M4

We have observed HD 229227 WN9-WN10 in the LMC during november 1980 (ESO 3,60 m telescope - Boller Chivens Spectrograph + RETICON - dispersion $228 \text{ \AA}.\text{mm}^{-1}$).

In the infrared region, the spectrum shows the characteristics of a symbiotic star (Ca II triplet lines in absorption and many absorption molecular bands of TiO $\lambda\lambda 7054-7126-7589-8432$ which permit to assign a spectral type M4 III.)

Thus, we have found another symbiotic star having a WR star as its hot component (Andrillat, Vreux, Dennefeld 1981).

It is interesting to note that all those WR stars which are members of symbiotic stars belong to the nitrogen sequence.

