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Vibrational Spectrum and Thermal Behaviour of $(NH_4)_{17}Na[NaW_{21}Sb_9O_{86}].28H_2O$ (HP-23); a Promising Drug in AIDS Therapy

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SUMMARY. Infrared and Raman specta of the title compound were recorded and an approximate vibrational assignement is proposed. Its thermal behaviour was investigated by means of TG and DSC measurements in N_2 and O_2 atmospheres, and complemented with studies carried out in ovens and crucible furnaces, in air. The results show that the drug presents a very low thermal stability.

RESUMEN. "Espectro Vibracional y Comportamiento Térmico de $(NH_4)_{17}Na[NaW_{21}Sb_9O_{86}].28H_2O$ (HP-23), una Droga Promisoria en la Terapia del SIDA". Se registraron los espectros infrarrojo y Raman del compuesto del título y se propone una asignación vibracional aproximada para el mismo. Su comportamiento térmico fue investigado mediante mediciones termogravimétricas y de calorimetría diferencial de barrido, en atmósferas de N_2 y O_2, y complementadas con estudios realizados en estufas y muflas, al aire. Los resultados muestran que la droga posee muy baja estabilidad térmica.

In recent years it has been recognized that certain polyoxometalates present high biological and pharmacological activity [1].

One of the most interesting compounds of this type is, undoubtedly, $(NH_4)_{17}Na[NaW_{21}Sb_9O_{86}].28H_2O$, commonly known as HP-23. In inhibited mouse leukemia-sarcoma *in vitro*, and reduced the development of desease caused by Friend leukemia or Moloney murine sarcoma virus [2]. Most recently, it has been shown that the reverse transcriptase activity of human immunodeficience virus (HIV), a causative agent of AIDS, is completely inhibited by HP-23 at a concentration of 60 µg/ml [3,4].

Ir order to advance in the characterization of this interesting drug we have now investigated its vibrational spectrum as well as its thermal stability and degradation.

KEY WORDS: HP-23; AIDS; Vibrational Spectrum; Thermal Behaviour
PALABRAS CLAVE: HP-23; SIDA; Espectro Vibracional; Comportamiento térmico