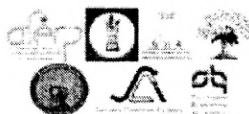




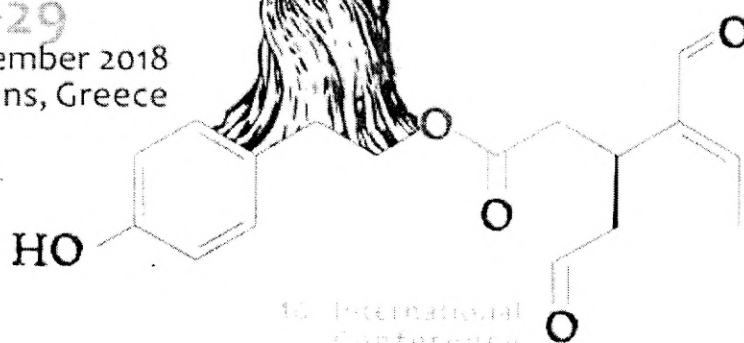
INTERNATIONAL UNION  
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ISCNP  
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# 30<sup>th</sup> International Symposium on the Chemistry of Natural Products

25-29  
November 2018  
Athens, Greece



10<sup>th</sup> International  
Conference  
on Biodiversity

abstract

AFEA

PS2-B-185

### **Antiviral properties of the leaf extract of succulent plant *Graptopetalum paraguayense* E. Walther against sensitive and resistance Herpes Simplex virus type 2 (HSV-2) strains**

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Herpes simplex virus types 1 and 2 (HSV-1 and HSV-2) are members of the Herpesviridae family and are the most common spread human pathogens. Furthermore, HSV-2 infection has been reported to be a risk factor in HIV infection. Nucleoside analogues such as the acyclovir (ACV) or its subsequent derivatives with better bioavailability such as famciclovir, valacyclovir and penciclovir remain as the mainstay for HSV infection treatment. However, with the emergence of acyclovir-resistant HSV strains particularly in immunocompromised patients, there is a need to develop an alternative antiherpetic drug.

The objective of our examination is to evaluate the anti-herpes activities of *Graptopetalum paraguayense* E. Walther (Crassulaceae) against sensitive and resistance HSV-2 strains in Vero cells by the MTT colorimetric assay. This is the first study that reported the antiviral activities of *Graptopetalum paraguayense* E. Walther. The results are present as 50% cytotoxicity (CC<sub>50</sub>) and as 50% inhibitory concentration of the viral effect (IC<sub>50</sub>) for CPE by MTT assay, which give possibility to calculate the selectivity index (SI). The aqueous extract of *Graptopetalum paraguayense* E. Walther has not cytotoxic effect on Vero cells. The extract effectively inhibits HSV-2 replication in dose-dependent manner. Furthermore, the extract is more effective inhibitor of HSV-2 Bja strain (sensitive to ACV) replication in cultured cells, as their IC<sub>50</sub> values are not so significantly lower than that of ACV. It was inhibited the HSV-2, Bja strain replication 87%, whereas its effect to HSV-2, strain DD (resistant of ACV) was about 75%.

The mechanism of the antiviral action of leaf extract of *Graptopetalum paraguayense* E. Walther (Crassulaceae) is not yet completely identified. Further studies are needed in order to verify which compounds could be responsible for this activity and how they exert their antiviral effects.

**Acknowledgements:** We acknowledge the financial support of the Bulgarian Fund for Scientific Research under Grant DH 19/16.

**Keywords:** Herpes Simplex virus type 2 (HSV-2), *Graptopetalum paraguayense* E. Walther, antiviral resistance, acyclovir (ACV), cytotoxicity, cell cultures