

Juniperus oxycedrus leaf essential oil: chemical characterisation and *in vitro* cytotoxic activity

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Introduction

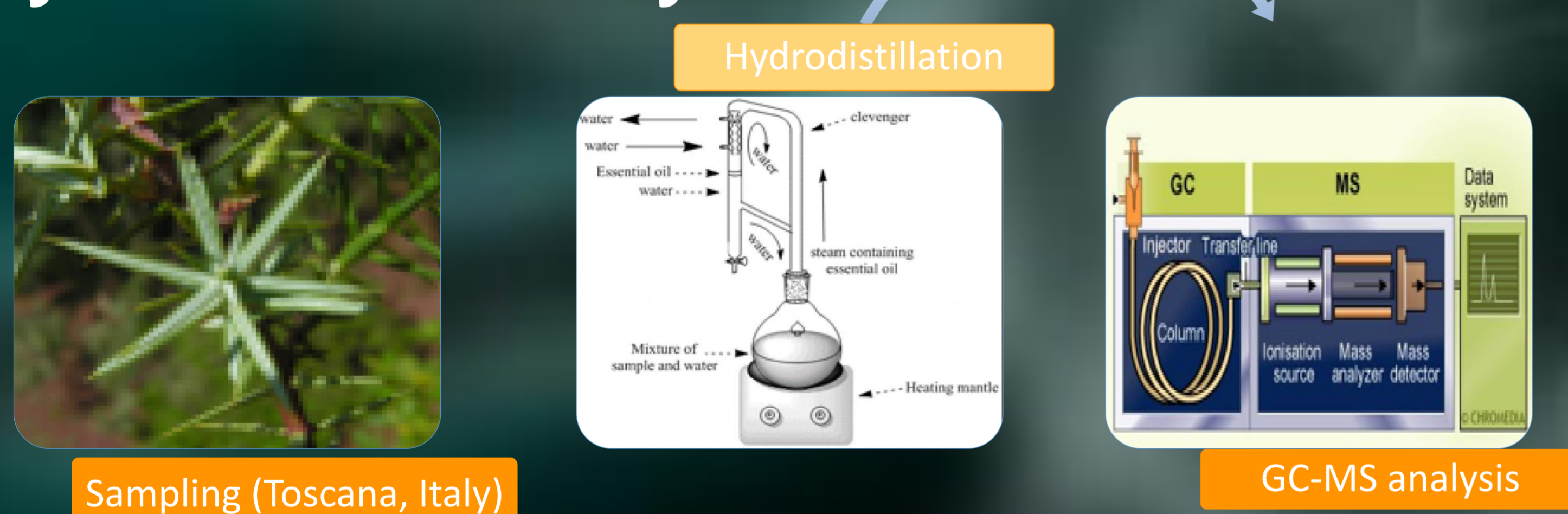
Cancer is the second leading cause of death globally and was responsible for 8.8 million deaths in 2015. Among the most common type of cancer that kill people were breast, cervical and bold cancers (OMS). The economic impact of cancer is significant and is increasing. The total annual economic cost of cancer in 2010 was estimated at approximately US\$ 1.16 trillion (1). Therefore, the resort to the use of the natural product becomes more and more propitious specially in patients that develop multidrug resistance. The use of essential oil for their anticancer activity dated to 1960 (2)(Bagora et al., 2014)

Aim:

After the chemical characterization of the leaf essential oil from *Juniperus oxycedrus* (Cupressaceae), the *in vitro* cytotoxic activity of this oil on MCF7 and K562 was tested using MTT assay.

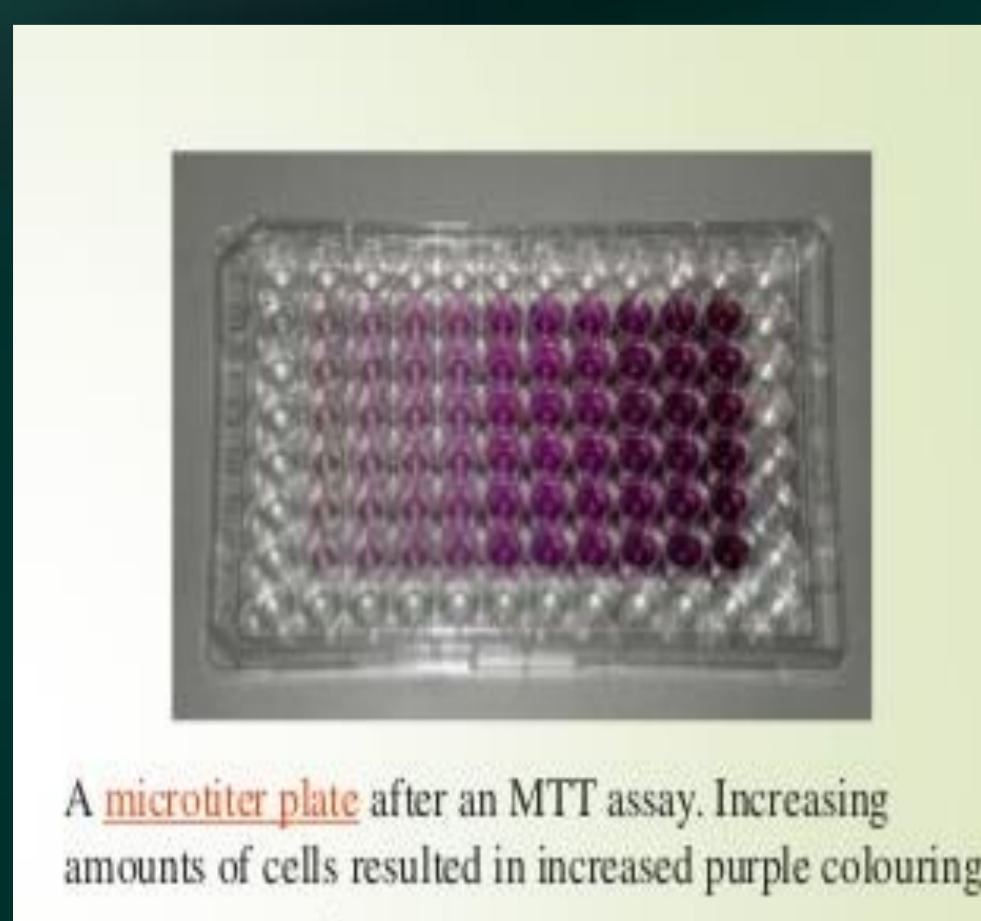
Experimental procedures

1: phytochemical analysis

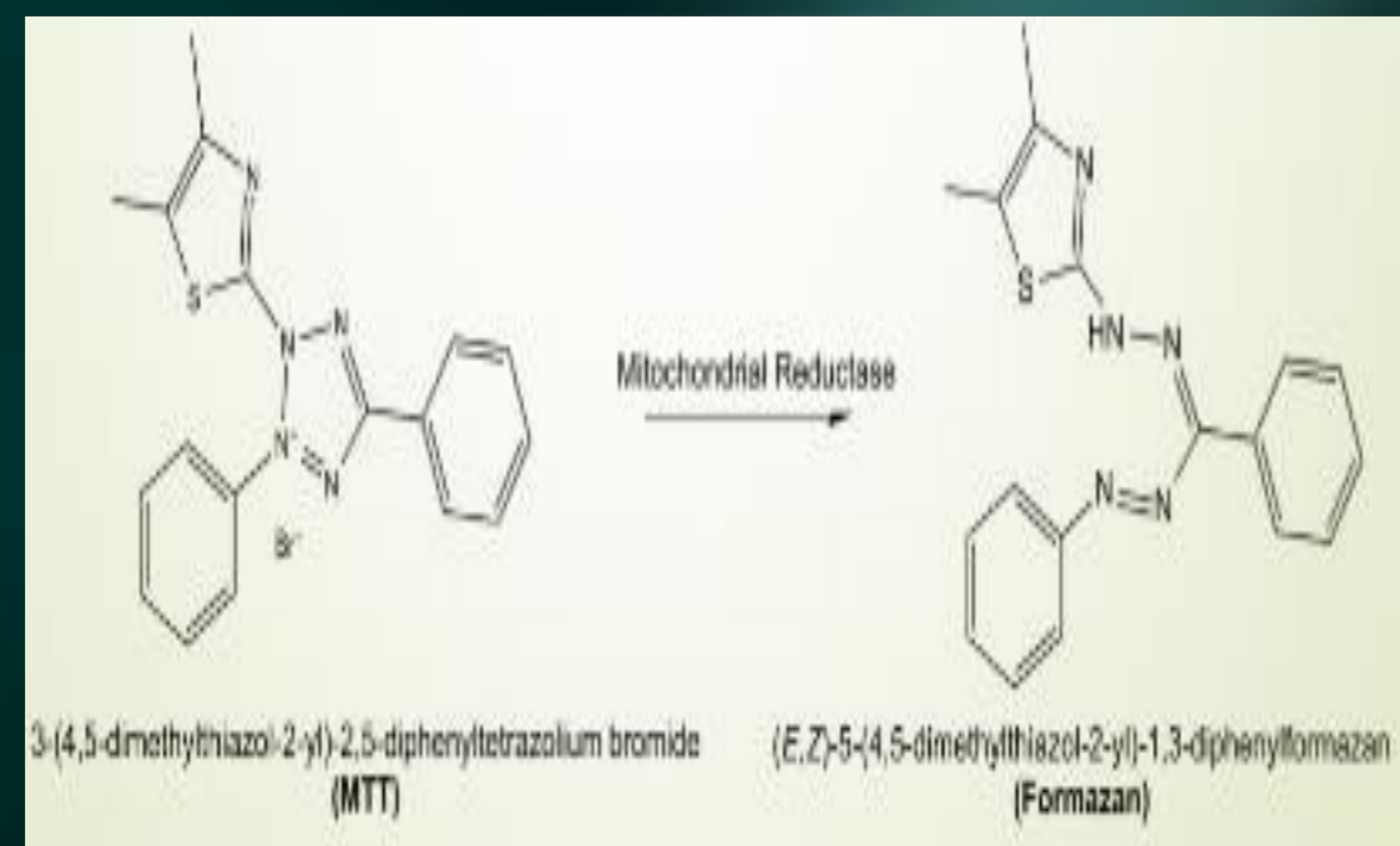


2: Cytotoxic activity

Cell lines	K562	MCF7
Origine	human chronic myelogenous erythroleukeamia	human breast adenocarcinoma
Cell culture medium	RPMI-1640	
density	5x10 ³	8x10 ³
Concent. of EO added	20 µl (40µg/µl diluted stock)	

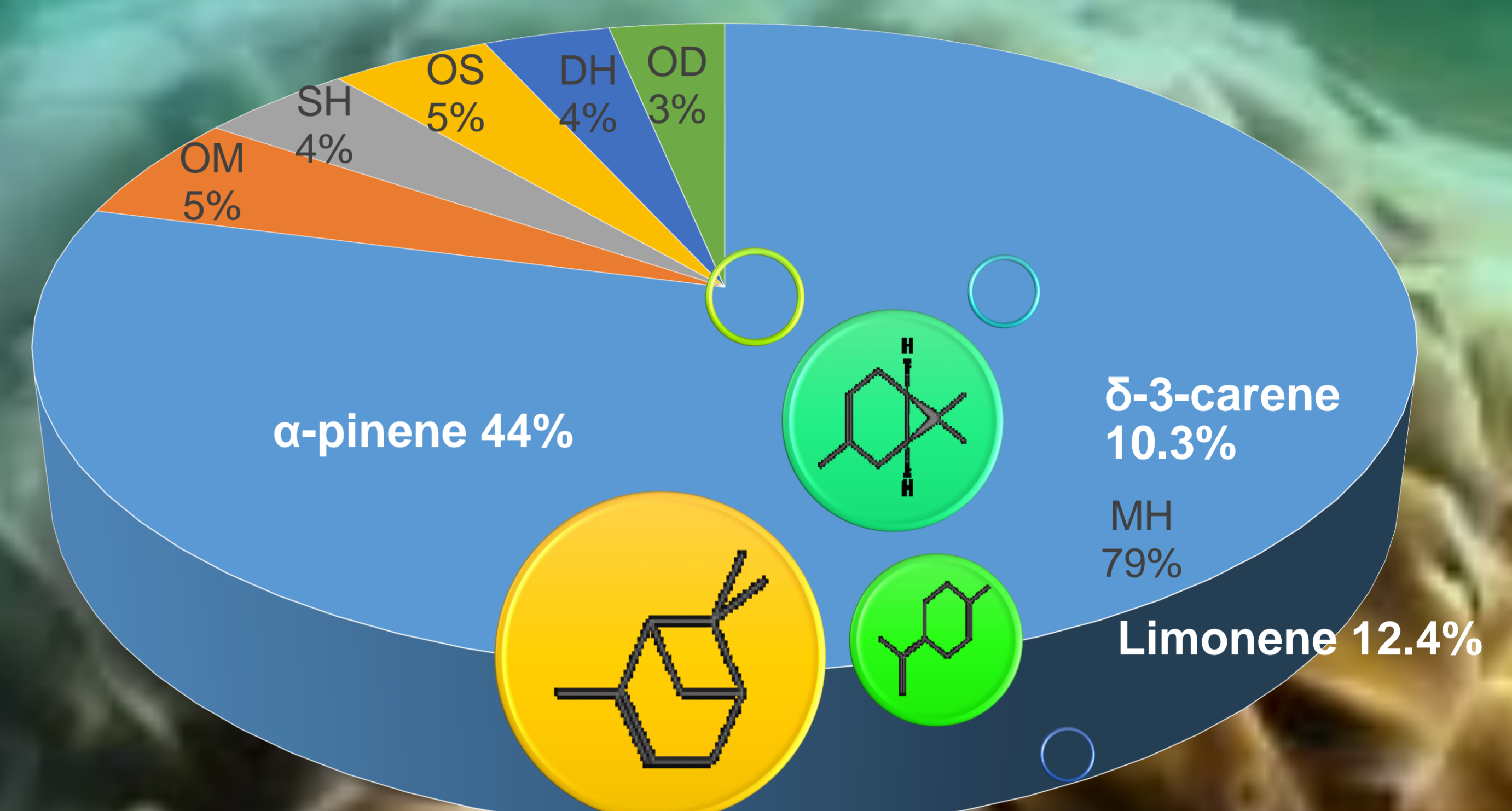


A microtiter plate after an MTT assay. Increasing amounts of cells resulted in increased purple colouring

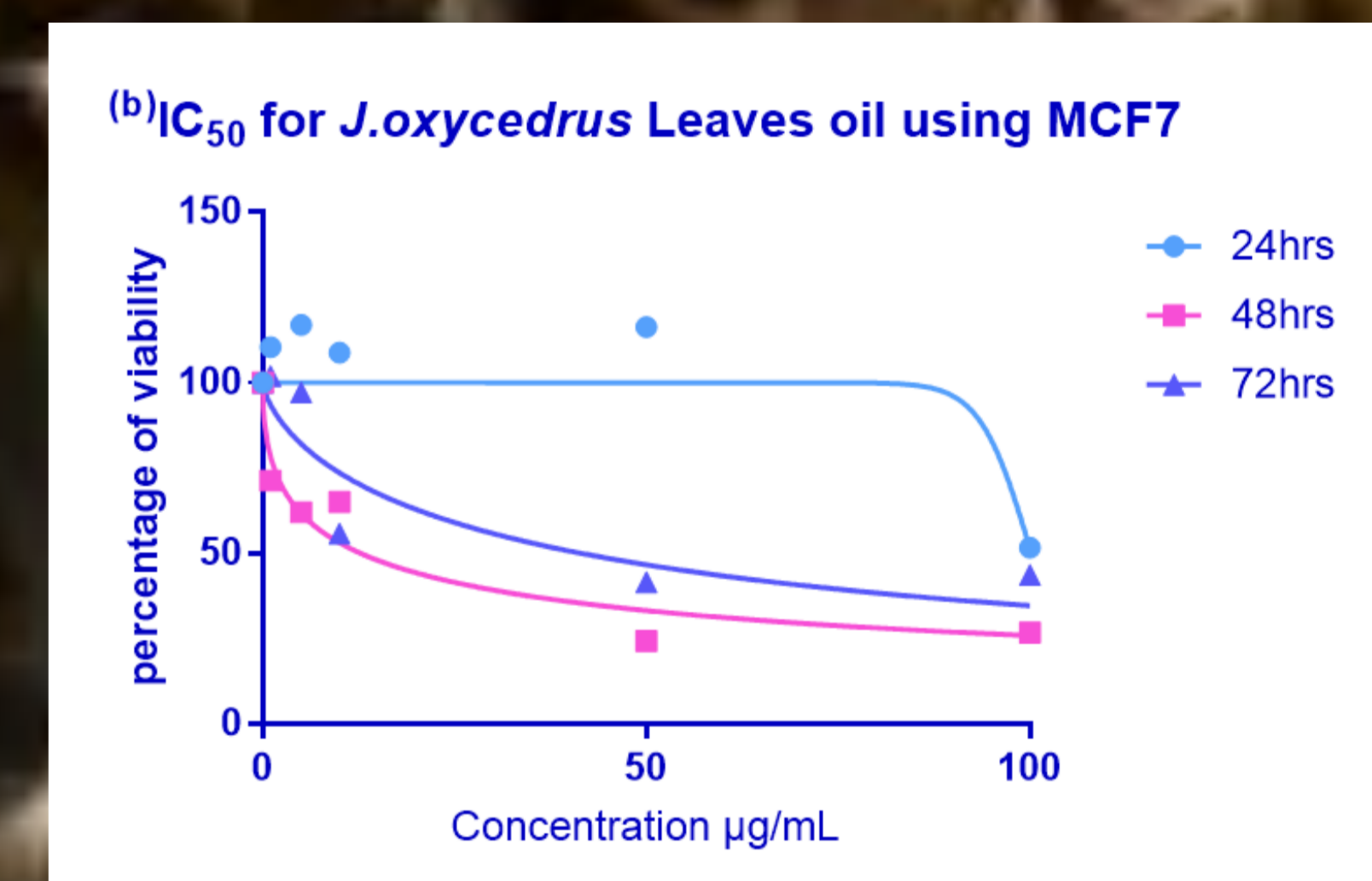
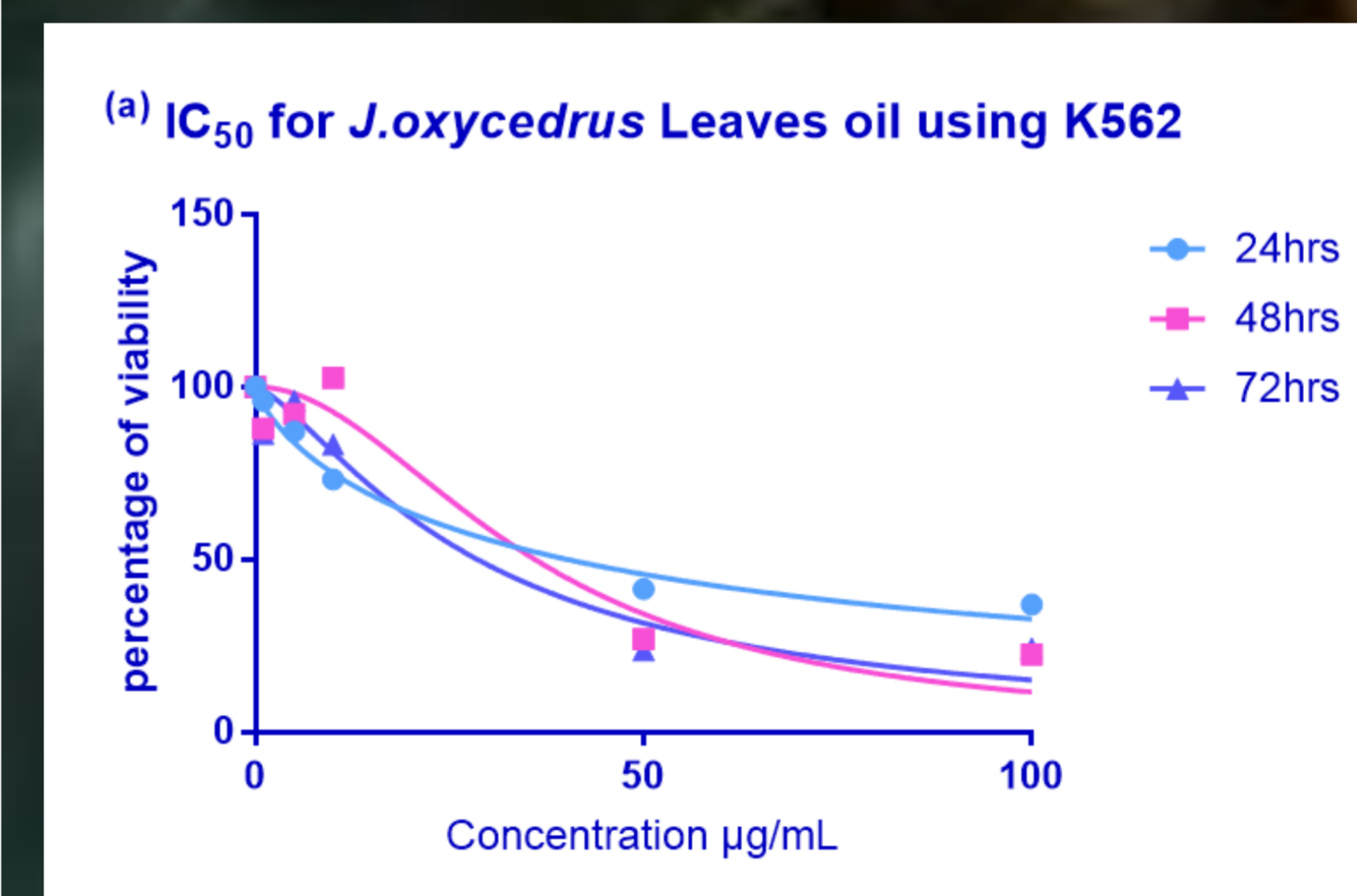


Results

Main Class of compounds in *J. oxycedrus* leaves EO.



A total of 54 compounds representing 96.2% of the identified fraction of the EO was identified. Three of this constituents representing 66.7% of the whole oil composition and more than 81% of monoterpene hydrocarbons.



MTT assay using cell lines treated with leaves EO of *J. oxycedrus* for 24, 48 & 72hrs: (a) IC₅₀ on K562; (b) IC₅₀ on MCF7.

IC₅₀ for K562 decrease with the increasing of time of exposure to the leaves EO of *J. Oxycedrus*. MCF7 showed a similar behaviour for the first 48hrs. however, it was inverted after 72hrs.

Conclusion

Leaf EO of *J. Oxycedrus* showed good results of activity in both cell lines especially after 48hrs of exposure. Other tests have to be done to prove the effect of this oil and to know its mechanism of action as well as the effect of its major compounds

References

- (1)Stewart BW, Wild CP, editors. World cancer report 2014. Lyon:International Agency for Research on Cancer.
- (2)Bayala B, Bassole IHN, Scifo R, Gnoula C, Morel L, Lobaccaro JMA, Simpre J: 2014. Am J Cancer Res. 4(6): 591- 607.