

Influence of microalgae extracts on the toxicity of a carcinogenic polycyclic aromatic hydrocarbon, benzo[a]pyrene in endothelial cells

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1

Microalgae



• Use : Cosmetology, Biofuel sector, Animal and Human nutrition

Khan., et al 2018

Microalgae in the human food and health



- Arthrospira (Spirulina)
- Chlorella
- Odontella aurita







Release of extracellular vesicles

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Tekpli et al., 2010; Serban et al., 2016; Banrwol., 2018

Objectives



Experimental approach



Ostreococcus tauri (OT)



- Green microalgae
- Marin origin
- DHA +++
- Carotenoids

Phaeodactylum tricornutumn (PT)



A. Vardi et al., 2008

- Diatom
- Marin origin
- EPA +++
- Fucoxanthin

Experimental approach

Microalgae Extracts production





Ethanol extract Molecules of organic (pigments, lipids ...)

Cellular model

• Endothelials cells line : **HMEC-1** *Human microvascular endothelial cell line-1*





Ades et al., 1992

Experimental approach



Cell Viability



CYP1A1, treatment 24 hrs



Inflammation



12

Apoptosis



Hoecht fluorescence stain, treatment 24 hrs



Extracellular vesicles (EVs)



• Markers of the physiological/pathological state of the cell: number and composition

OT inhibits Extracellular vesicles production induced by B[a]P



Conclusion and Perspectives



Program Environnement-Santé-Travail of ANSES with the funding from ITMO cancer in the context of the Cancer Plan 2014-2019 (EST-2016/1/31)

Collectivités Locales Mayennaises





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