

Why Different Lipids in Different Animals – Has Evolution Anything to Say?

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Lipids have traditionally been perceived as just lipids, i.e. as one unity with possibly a few compounds having biological implications on their own. Arachidonic acid, being the base of prostaglandins and inflammation and cholesterol as the main cause of early death in coronary diseases are typical examples. More recent research has revealed knowledge about this huge group of hydrophobic compounds, highlighting complex bioactive roles for many individual fatty acids and other lipid compounds.

After working with lipids in living organisms one soon becomes aware of some patterns that seem to be universal. Firstly, all complex fatty acids, if we consider length, unsaturation and branching have their origin from the plants. We can distinguish two main lines, plants on land or in water. In fact, this can be subdivided into salt-fresh and tropic-temperate. One also becomes aware of the relationship between unsaturation and temperature and its importance for the function of the organism.

This talk will firstly try to define an ecological map over the landscape of lipid environments. The second question will try to address if evolving in these landscapes have created specific ecological “lipid” niches. Finally, we will try to answer the question if this has any implication on how to address animal nutrition today.