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Matrix Effect on the Electrooptical Properties of heptylviologen

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This work relates to studying an electrooptical behaviour of viologen molecules incorporated into different liquid and viscous matrices, namely water, lyotropic liquid crystals, aqueous solution of polyvinyl alcohol, etc. Results obtained by methods of optical spectroscopy revealed that matrix has a strong effect on absorption of viologens in the visible region, causing a significant peak shift between different host media. Since viologens absorb only being in their radical cationic or dimeric state formed under the action of electric field, this change in the absorption means that matrix may influence an electron transfer, which occurs upon voltage application. Particularly, it affects the rates of reduction processes which lead to the formation of coloured radical cations and dimers.