This thesis work is using as raw materials two performing siccative oils, linseed oil (*Linum usitatissimum*, LO) and the oil of romanian melisse (*Lallemantia iberica*, LALO) a less-known oil with remarkable potential aplication, having a higher degree of unsaturation than linseed oil. Since LALO is not yet commercially available, an optimized extraction method from the seeds was developed. In order to make LALO suitable for possible functionalizations, a preliminary laboratory treatment was applied. In the second part of the thesis LALO was functionalized by introducing an oxirane group (epoxidation), in order to use the reactive epoxide (ELALO) as a raw material for thermosetting polymers. For comparison, epoxidized linseed oil (ELO), was also used. In the next step, epoxy resins based on ELALO and ELO were obtained. The use of a second component, lignin, a very abundant, sustainable natural material with a positive carbon footprint and with an interesting chemistry, was also investigated. These epoxy resins were used as matrices for composites incorporating kraft lignin as filler, either as such (LnK) or as an epoxidized derivative (ELnK). The applications targeted were anticorrosive coatings based on ELO-LnK materials as well as composite materials based on ELALO-ELnK. In the latter application various structure-directing agents aiming an improved dispersion of lignin were used. Both types of composites, ELO-LnK and ELALO-ELnK, were characterized using various techniques. The anticorrosive efficiency of the ELO-LnK coatings was tested in aggressive chloride environments by means of various electrochemical methods.