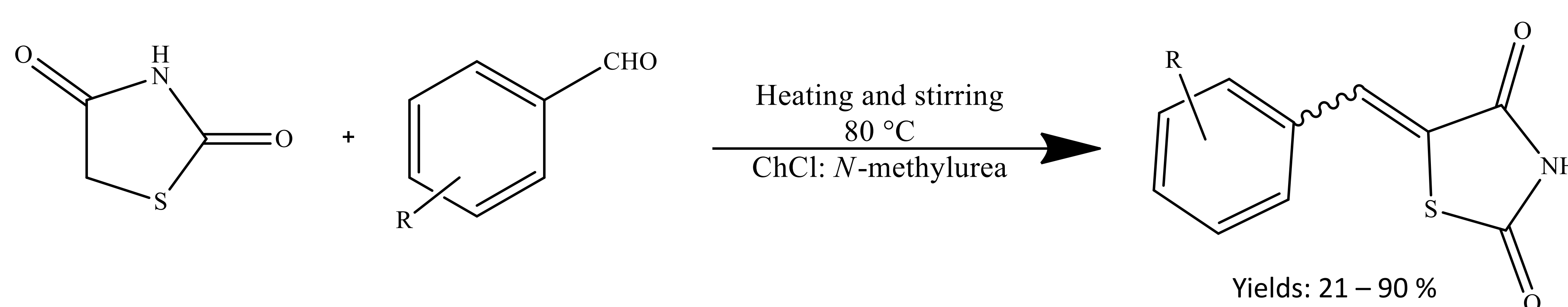


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Thiazolidinediones are heterocyclic compounds, also known as glitazones, that possess thiazolidine core. This class of compounds are used in production of drugs used in treatment of diabetes mellitus type 2. Depending on the substituents, the thiazolidinedione derivatives may possess different biological activities such as anti-diabetic, anti-cancer, anti-arthritic, anti-inflammatory, anti-microbial and anti-melanoma. Various studies have been performed showing different biological activities of thiazolidinediones associated with enzymes like aldose reductase (ALR2), histone deacetylase (HDAC), phosphoinositide 3-kinases (PI3Ks), pim kinase, mitogen activated protein kinase (MEK), protein tyrosine phosphatase 1B (PTP1B), tyrosinases, cyclooxygenase-2 (COX-2), UDP-*N*-acetylmuramoylalanine D-glutamate ligase (MurD ligase). Due to different biological activities, numerous methods for synthesis of thiazolidinedione derivatives have been developed. Many methods for synthesis of these compounds are conventional and are not environmentally acceptable due to utilization of various catalysts and organic solvents. In order to reduce the formation of harmful substances during the synthesis, deep eutectic solvents can be used. Deep eutectic solvents are considered green solvents according to their properties like low toxicity, low inflammability, high recyclability and low volatility. Lipoxygenases (LOX) are iron-containing enzymes that convert polyunsaturated fatty acids into biologically active compounds involved in the inflammatory and immune responses. Sometimes, it is necessary to inhibit those enzymes to avoid adverse reactions in plants and animals as well as in humans.



Scheme 1. Synthesis of rhodanine derivatives *via* Knoevenagel condensation between thiazolidine-2,4-dione and substituted benzaldehydes

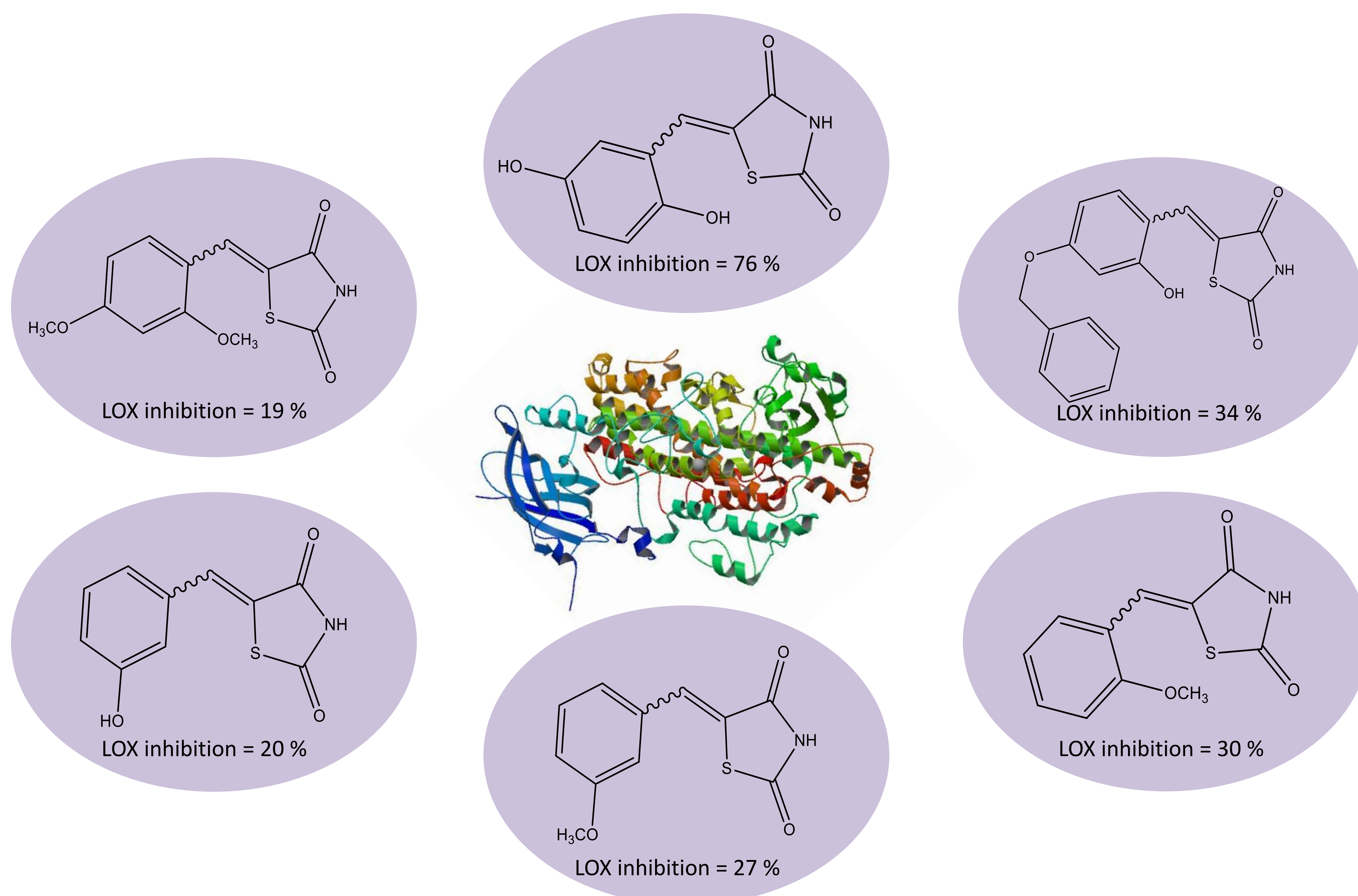


Figure 1. Thiazolidinedione derivatives and their inhibition of soybean lipoxygenase

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