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Document Title	:	*Optimal design for constrained mixture experiments* *يصميات مثلي لتجارب خليطية مقيدة*
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Abstract	:	Mixture experiments are widely used in many fields. Over the last three decades, there has been an increasing interest in the construction of mixture designs together with methods for analyzing mixture data. However, few published papers are dealing with optimal designs for mixture experiments. This thesis presents a review of relevant prominent results about mixture experiments, including the basic canonical polynomial models and the placing of multiple constraints on some or all of the component proportions. The thesis consists of five chapters and a brief summary, their contents is given below: Chapter I presents a brief review of the main characteristics of mixture experiments as well as the objectives and organization of the work. Chapter II contains the relevant background about mixture designs including Sheffs canonical polynomial models, the simplex-lattice and the simple-lattic and the simple centraoid designs. Designs of mixture experiments under constraints on the component proportions is the subject of chapter III . Chapter IV is devoted to the inclusion of process variables together with optimality of designs. The main contribution of this thesis is given in chapter V where a proof is given for the D-optimality of orthogonal block designs for constrained mixture experiments involving process variables