

I N T R O D U C T I O N

The study of the chemistry of fatty acids and their derivatives attained a remarkable interest only during the past two decades. This is a gratifying phenomenon since the chemistry of fatty acids represents one of the original areas of study in the chemistry of natural products, having been investigated in some detail by Chevreul approximately 150 years ago. The lack of academic interest in this field was mainly due to the complex and non-crystalline nature of triglycerides.

Scientists have been actively engaged in basic and applied research aimed at the development of new crops for industrial purposes. The fundamental phase of this research is the screening programme to discover, define, and evaluate new or unusual compounds of promising industrial utility in plants with a reasonable potential of cultivation. The screening programme has revealed — and continues to indicate — species whose development into new domestic crops could satisfy existing needs, or newly developing requirements of the industry as it increases in size and complexity.

As a direct result of this interdisciplinary research, the species or groups of species, found to have an outstanding

potential as new oilseeds, await agronomic improvement through selection and breeding before crop status can be realised.

Our agricultural economy is faced with surpluses of farm products, causing price support programmes to become very costly. There is need to develop new economic crops, producing products which would not be competitive with products of crops now in surplus and which could be grown on land now planted with crops such as cotton, wheat, and corn.

Considerable effort has gone into attempts to keep the surplus of fats as low as possible through chemical and other kinds of research. Finding new uses for surplus agricultural commodities is important not only to reduce their surplus, but to provide an important, recurring industrial resource.

A botanical survey of the wild populations revealed a sizable group of species with a wide spectrum of variation in characteristics. The variability within this plexus of favourable species suggested eventual success for research to develop suitable lines. Various species, such as soybeans, safflower, sunflower, rape etc. are presently suitable as new chemurgic crop because of its potential industrial and feed uses.

Recently, new and interesting reactions of fatty acids have been described that provide new route to the synthesis of a variety of fatty acid derivatives, which may be useful as raw

materials for the chemical and allied industries in such fields as plastics, lubricants, pharmaceuticals, and cosmetics. The modern methods of spectroscopic and chromatographic techniques has contributed much to the recognition of a variety of novel fatty acids in existence and of their molecular structures.

The present compositional study on herbaceous seed oils from uncultivated plants was undertaken to explore the wild oilseed potential of the country and to assess the practical value of oil-rich species for providing new oilseeds. Also included in the present study are attempts to prepare new sulphur-containing fatty acid derivatives likely to be of academic or industrial interest.