CHANGES IN VITAMIN E AND ESSENTIAL FATTY ACID CONTENTS AND THEIR INTERRELATIONSHIP IN SOYBEAN SEEDS DURING GERMINATION AND STORAGE

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ABSTRACT

Soybean [Glycine max (L.) Merr.] is considered an important crop in the world owing to its unique nutritional composition. On an average dry matter basis, soybean contains about 20% fat. Soy fat contains a high proportion of vitamin E (alpha tocopherol) and essential fatty acids such as linoleic and linolenic acids. In this study, vitamin E andlinoleic and linolenic acid contents of soybean seeds were estimated with different germination times (24, 48 and 72 hrs) and storage with different packaging materials (aluminum foil, polythene, paper and unpacked) for a period of six months. The highest vitamin E content (12.63µg/g) was observed in the sample germinated after 48 hrs. The highest amount of linoleic acid (107.57 mg/g) and linolenic acid (18.27 mg/g) were observed in the ungerminated sample and sample germinated after 72 hrs, respectively. A significant positive correlation (r=0.81) between vitamin E and linolenic acid was observed in the germinated seeds. Vitamin E content of soybean seeds decreased with time under all four packaging conditions. Linoleic acid content of the seeds stored in aluminum foiland polythene packets increased with time. However linoleic acid content of the seeds stored in paper bags and unpacked seeds decreased significantly with increasing storage time. Linolenic acid content of soybean seeds also decreased with time under all four packaging conditions. A significant positive correlation (r=0.910 between vitamin E and linolenic acid contents and between vitamin E and vitamin E/essential fatty acid ratio (0.98) was observed during storage. The rate of loss of vitamin E, linoleic and linolenic acid was comparatively low in seeds packed in aluminum foil and polythene than other packaging types.