EFFECT OF PECTIN AND GLUCOSE SYRUP
CONCENTRATIONS ON PHYSICOCHEMICAL PROPERTIES
AND SENSORY ACCEPTANCE OF CARROT LEATHER

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EFFECT OF PECTIN AND GLUCOSE SYRUP CONCENTRATIONS ON PHYSICOCHEMICAL PROPERTIES AND SENSORY ACCEPTANCE OF CARROT LEATHER

By

Chai Kong Fei

Research Report submitted in partial fulfillment of
the requirements for the degree of
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DEPARTMENT OF FOOD SCIENCE
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ENDORSEMENT

The project report entitled **Effect of Pectin and Glucose Syrup Concentrations on Physicochemical Properties and Sensory Acceptance of Carrot Leather** by **CHAI KONG FEI**, Matric No. **UK 17338** has been reviewed and corrections have been made according to the recommendations by examiners. This report is submitted to the Department of Food Science in partial fulfillment of the requirement of the degree of Bachelor of Food Science (Food Technology), Faculty of Agrotechnology and Food Science, Universiti Malaysia Terengganu.

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DECLARATION

I hereby declare that the work in this thesis is my own except for quotations and summaries which have been duly acknowledged.

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ABSTRACT

Carrot consumption has been increasing over the past few years as it is found to be nutritious with essential vitamins and minerals. However, it is seasonal in nature and highly susceptible to moisture loses, leading to loss of fresh appeal and degradation of rigidity. Vegetable leather is one of the alternative products that can be produced from carrot. The objectives of this study were to determine effect of pectin and glucose syrup concentrations on physicochemical properties and sensory acceptance of carrot leather. Samples were produced with different pectin concentrations (0.8%, 1.6%, 2.4% and 3.2%) and different glucose syrup concentrations (0%, 10% and 20%). Interaction between pectin and glucose syrup concentrations significantly affected ($p<0.05$) several textural properties (hardness, adhesiveness, cohesiveness and chewiness) and sensory acceptance (color, texture and overall acceptance) of carrot leather. Meanwhile, pectin concentration alone significantly affected ($p<0.05$) springiness, gumminess and tensile strength of carrot leather. At the same time, glucose syrup concentration alone significantly affected ($p<0.05$) water activity, lightness, redness and protein content of the leather. Better physical properties and sensory acceptance were gained from the sample produced with 1.6% (w/w) pectin and 20% (w/w) glucose syrup. These results showed that carrot leather has potentials to be introduced as a new dried product in order to increase the variety of carrot products in the world.

ABSTRAK

Penggunaan lobak merah semakin meningkat sejak beberapa tahun dahulu kerana lobak merah didapati berkhasiat dan mengandungi vitamin dan mineral yang penting. Walau bagaimanapun, lobak merah adalah bermusim dan sangat mudah kehilangan kelembapan dan kesegaran serta ketegaran degradasi. *Vegetable leather* adalah salah satu produk alternatif yang boleh dihasilkan daripada lobak merah. Objektive kajian ini adalah untuk menentukan kesan kepekatan pektin dan sirap glukosa terhadap sifat-sifat fizikokimia dan penerimaan deria *carrot leather*. Sampel dihasilkan dengan kepekatan pektin (0.8%, 1.6%, 2.4% dan 3.2%) dan sirap glukosa (0%, 10% dan 20%) yang berbeza. Interaksi antara kepekatan pektin dan sirap glukosa menjejas beberapa tekstur atribut (kekerasan, kelekatan, kepaduan, kekenyalan,) dan penerimaan deria (warna, tekstur dan penerimaan keseluruhan) *carrot leather* secara ketara ($p<0.05$). Sementara itu, kepekatan pektin sendiri menjejas daya melenting, kelekitan dan kekuatan tegangan *carrot leather* dengan ketara ($p<0.05$). Pada masa yang sama, kepekatan sirap glukosa sendiri menjejas aktiviti air, keterangan, kemerahan dan kandungan protein *carrot leather* dengan ketara ($p<0.05$). Didapati sample dihasil daripada 1.6% (w/w) pektin dan 20% (w/w) sirap glukosa member sifat fizikal dan peneriamaan deria yang lebih baik. Keputusan ini menunjukkan *carrot leather* mempunyai potensi untuk diperkenalkan sebagai produk kering yang baru untuk meningkatkan kepelbagaian produk daripada lobak merah di dunia.