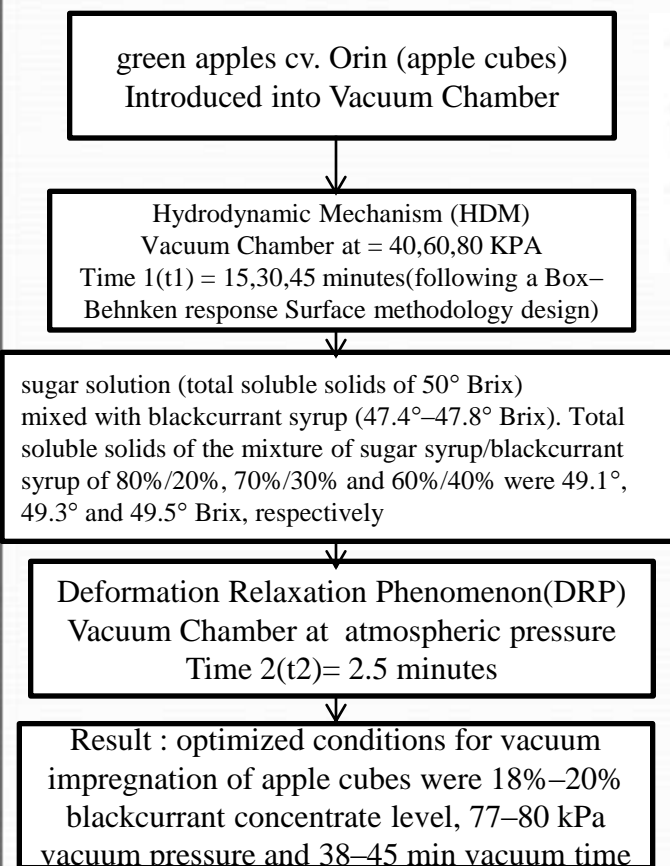


vacuum impregnation to modify health-promoting properties of green apples cv. Orin (apple cubes)

Raw Material	Composition of Vacuum Impregnation Solutions	Process Parameters	Effect
green apples cv. Orin (apple cubes)	sugar solution (total soluble solids of 50° Brix) mixed with blackcurrant syrup (47.4°–47.8° Brix). Total soluble solids of the mixture of sugar syrup/blackcurrant syrup of 80%/20%, 70%/30% and 60%/40% were 49.1°, 49.3° and 49.5° Brix, respectively	p 1 40, 60, 80 kPa t 1 15, 30, 45 min (following a Box–Behnken response Surface methodology design) t 2 2.5 min	optimized conditions for vacuum impregnation of apple cubes were 18%–20% blackcurrant concentrate level, 77–80 kPa vacuum pressure and 38–45 min vacuum time

Flow Chart



Vacuum Impregnation Setup



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Result:

Optimized conditions for vacuum impregnation of apple cubes were 18%–20% blackcurrant concentrate level, 77–80 kPa vacuum pressure and 38–45 min vacuum time. Quercetin and its derivatives were introduced similarly as in the previous studies with apple juice containing an addition of apple skin extract. The authors did not record losses of introduced polyphenolic compounds during freeze-drying or microwave-vacuum drying, while convection drying caused losses of quercetin and its derivatives amounting to 44%. Diamante et al. (2014) introduced a black currant extract to apple cubes by vacuum impregnation.