

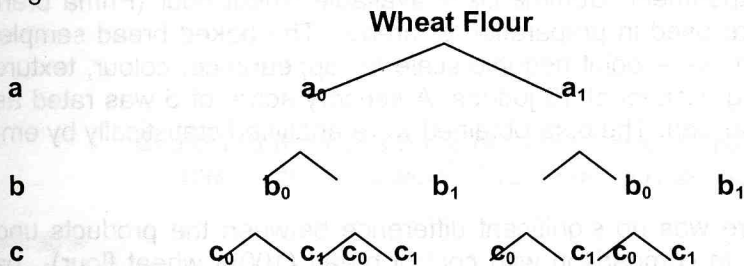
Development of a bread improver for bakery industry

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Appearance, texture and mouth feel of baked bread are very important quality parameters that promote a better perception of the product in the dynamic market. Since properties of these three key factors are depend on the quality of breadcrumb, formation of a well developed crumb is an important prerequisite. Hence, activities of yeast are to be enhanced by incorporation of growth inducers such as bread improvers. Therefore, with a view to developing a better bread improver, 5 kg of clean wheat flour, moisture content of which was predetermined, was subjected for this experiment with respect to the two factor factorial design. Three variables Sugar, Yeast and Leaving time at two levels 1% & 3%, 1% & 3% and 3 hrs & 6 hrs respectively were taken into account and 8 dough samples in 50g at 60% moisture content were prepared.

The Design



Treatment combinations $a_0b_0c_0$, $a_0b_0c_1$, $a_0b_1c_0$, $a_0b_1c_1$, $a_1b_0c_0$, $a_1b_1c_0$, $a_1b_1c_1$

a_0 - 1% sugar, a_1 - 3% sugar, b_0 - 1% yeast, b_1 - 3% yeast, c_0 - 3hrs leavening time, c_1 - 6hrs leavening time

All samples were dried in an oven maintained at 100°C for $3\frac{1}{2}$ hrs to get moisture content at 8.0%. Dried samples (bread improvers) were packed in triple laminate pouches and stored under normal environmental condition (RH 70-72%, Temp 28° - 32°C) for 3 months. All samples were replicated

thrice and used as bread improvers for subsequent tests. One present from each of prepared bread improvers was incorporated with a normal bread dough (1% yeast, 1% sugar, 58% moisture) and monitored, least time taking treatment to reach the optimum leaving index 2.0, a prerequisite to have a soft and better bread crumb.

$$\text{Leaving index} = \frac{\text{Volume increment}}{\text{Initial value}}$$

Result revealed that 3% sugar level with 1% yeast and 6 hrs leavened treatment was the best improver, as which was capable to reach leavening index 2.0 within a matter of 2.25 hrs even after three months of shelf life. The control sample of normal bread dough without having the improver took 4.25 hrs to reach the leavening index 2.0. Hence, the best treatment showed comparatively a 47% improvement as against control in terms of leaving time comparatively a 47% improvement as against control in terms of leavening time. The best treatment combination tried out with same bread dough with 0.5% vit C, was able to reduce leavening time by 15 minutes or 12% improvement.

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