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Assessment of molecular weight distribution of wheat gluten proteins for chapatti quality

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1 **Assessment of molecular weight distribution of wheat gluten proteins for**
2 **chapatti quality**

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8 **ABSTRACT**

9 Size Exclusion Chromatography (SEC) was used to characterize molecular weight
10 distribution pattern of gluten proteins of four Indian commercial wheat varieties in order to
11 elucidate their influence on flour physicochemical, dough rheology and quality characteristics
12 of chapatti. SEC profile of a wheat variety was segregated into five domains: peak I (130-30
13 kDa; glutenins), peak II (55-20 kDa; gliadins), peak III (28-10 kDa; low molecular weight
14 gliadins), peak IV and V (<10 kDa; albumins and globulins). SEC results indicated that R/E
15 ratio ($r=0.745^{**}$ and $r=-0.869^{**}$), gluten index ($r=0.959^{**}$ and $r=-0.994^{**}$), dough development
16 time ($r=0.830^{**}$ and $r=-0.930^{**}$) and dough stability ($r=0.901^{**}$ and $r=-0.979^{**}$) were
17 positively and negatively altered by peak I and II, respectively. Peak I ($r=0.879^{**}$ and $r=-$
18 0.981^{**}) and peak II ($r=-0.744^{**}$ and $r=0.995^{**}$) substantially influenced the chapatti hardness
19 and overall score, respectively.

20

21 Keywords: Size exclusion chromatography, dough rheology, chapatti, molecular weight
22 distribution, gliadins, glutenins.

23

24 **1. Introduction**

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