

Structural Properties of Coffee Beans as Influenced by Roasting Conditions

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SUMMARY

Hot air roasting of coffee beans not only forms color and flavor compounds, but also leads to a profound alteration of the bean microstructure. The resulting pore structure controls mass transfer phenomena during roasting and storage. The principal objective of the present project was to investigate the influence of different roasting conditions on volume increase and pore structure development. Coffee beans were roasted in two different, well-defined processes to equal degree of roast. Volumetry, mercury porosimetry and electron microscopy were employed to study structural product properties. The roasting conditions were found to have a major impact on microstructure. High-temperature roasted coffees had greater bean volume, pore volume and larger cell wall micropores as compared to low-temperature roasted beans.