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不同大豆品种根瘤固氮酶活性与固氮量差异研究

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**摘要:** 大豆根瘤固氮酶活性与固氮量是衡量大豆固氮能力的重要指标,也是合理施用氮肥的依据。试验采用框栽方法,应用<sup>15</sup>N示踪技术,研究了不同大豆品种根瘤固氮酶活性与固氮量差异。结果表明:4个供试大豆品种根瘤固氮酶活性、根瘤干重及根瘤固氮潜力都呈现先升后降的变化趋势,但品种间有显著差异;生育期短的大豆品种根瘤固氮酶活性高于生育期长的品种,根瘤干重则相反,生育期越长,根瘤干重越大;根瘤固氮潜力随大豆品种生育期的延长而增加。大豆植株氮素构成品种间存在明显的差异性,随着品种生育期的延长,根瘤固氮所占的比例提高;在大豆品种黑河41氮素构成中,土壤氮和根瘤固氮所占比例相同,其他品种均以根瘤固氮为主,其次是土壤氮,肥料氮所占的比例很低。

**关键词:** 大豆 根瘤固氮 固氮酶活性

Study on the Difference of Nodule Nitrogenase Activity and Amount of Nitrogen Fixation of Different Soybean Varieties

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**Abstract:** Soybean nodule nitrogenase activity and amount of nitrogen fixation is an important index of soybean nitrogen fixation, and a basis for reasonable application of nitrogen fertilizer. The <sup>15</sup>N tracer technique was applied to determine the difference of nodule nitrogenase activity and amount of nitrogen fixation of different soybean varieties with frame tests. Results showed that nodule nitrogenase activity, nodule dry weight and the potential of nitrogen fixation increased and then decreased in four tested soybean varieties, and significant differences were observed among the varieties. Nitrogenase activity of varieties with short growth period was higher than that of varieties with long growth period, however nodule dry weight showed the opposite trend. The longer growth period was, the higher nodule dry weight was. The potential of nitrogen fixation increases with growth period prolonging. There was significant difference of nitrogen composition in different soybean varieties, ratio of nodule nitrogen fixation increased with growth period prolonging; ratio of soil nitrogen and ratio of nodule nitrogen fixation were similar in soybean varieties of HH41, nodule nitrogen fixation was mainly as nitrogen source in other varieties, with the second of soil nitrogen, and proportion of fertilizer nitrogen was quite low.

**Keywords:** Soybeans Nodule Nitrogen Fixation Nitrogenase Activity

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