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# A randomized clinical trial of the efficacy of applying a simple protocol of boiled *Anethum Graveolens* seeds on pain intensity and duration of labor stages<sup>☆</sup>



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## KEYWORDS

Anethum Graveolen;  
Pain;  
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## Summary

**Objective:** This study aimed to test the effects of boiled *Anethum Graveolens* seeds on pain intensity and duration of labor stages.

**Methods:** A randomized clinical trial was conducted on 153 eligible participants who had regular uterine contractions. Participants were allocated to either intervention or control group receiving boiled *Anethum Graveolens* seeds or routine care, respectively. Preparation of *Anethum Graveolens* boiled solution was as follows: 10 g (two tablespoons) of seed in 100 cc water boiled for 10 min. After filtration, this solution used by intervention group only once after starting active phase (3–4 cm of cervix dilatation). Participants were followed up to the delivery time. Data were analyzed using *T*, and Chi square tests.

**Results:** Findings showed that the length of the all stages of labor were significantly lower in intervention compared to control group in except for second stage in primiparous. The second stage of labor in primiparous participants in intervention group was shorter than control group, although the difference is not significant. Moreover, intervention group had a significantly better dilatation and effacement scores after 1, 2, 3 and 4 h following the intervention compared to control group.

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**Conclusion:** Results supported the boiled Anethum Graveolens seeds as an effective way to progress of the labor.

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## Background

Delivery is one of the human physiological activities that start with pain. Labor pain may cause fatigue and anxiety as well as negative effects on labor progress.<sup>1</sup> During delivery, excessive pain and subsequent fear and anxiety stimulate catecholamine and cortisol secretion that further intensifies the pain, and potentially prolong the first and second stages of labor. It has been suggested that prolonged labor is associated with fetal complications, including head compression, impaired oxygen supply, poor neonatal outcome, low apgar score, fetal death, increasing serious complications such as perineal trauma and increased cesarean delivery prevalence.<sup>2–5</sup>

However, because of potential side effects on mothers and fetus, the use of pharmacological agents may not be the first choice for labor pain management. So, in modern obstetrics, the major focus is on non-invasive and having minimal side effects therapies. There are three principles for pain relief in midwifery including simplicity, safety and maintaining fetal homeostasis,<sup>6</sup> and the non-pharmacological methods encompass all of the above factors. There are no effects on delivery, and no maternal or fetal side effects.

Many years ago, using the herbal medicine was common in some countries. *Anethum graveolens* L. is a member of the Apiaceae family, commonly known as dill (Fig. 1). Anethum Graveolens is used both medicinally and as an aromatic herb in cooking. It grows most abundantly in the Mediterranean region, Europe and in central and southern Asia including Iran.<sup>7</sup> It is a popular aromatic herb with a very long history of use dating back over 2000 years.<sup>8</sup> It has been used in the treatment of certain disorders like digestive disorders, convulsion, vomiting, menstrual problems, neonate colic,



**Figure 1** Anethum Graveolens seeds.

blood cholesterol and lipid levels.<sup>9,10</sup> Anethum Graveolens is an herbaceous and aromatic herb and the chemical combination of the seeds includes tannin, resin, an oily essence made up of limonene, ketone, and carvon. It has been suggested that tannins are usually from polyphenols which have contraction characteristics.<sup>11</sup> An earlier study has shown that Anethum Graveolens seeds in laboratory have contractive effects on myometer.<sup>12</sup> Moreover, Anethum Graveolens seeds lead to releasing oxytocin which plays an important role in uterine contraction.<sup>13</sup>

Hekmatzadeh et al.<sup>14</sup> reported that consuming two tablespoons of boiled Anethum Graveolens seeds leads to the reduction of first stage duration. In addition, they demonstrated that the plant facilitates and accelerates the parturition process. Ebrahimzadehzagami et al.<sup>15</sup> reported that Anethum Graveolens seed infusion (1 tablespoon whole dill seed seeped in a half or whole cup boiling water for 3–4 min) cause the increase of the numbers of contractions and reduction in duration of the first stage of labor. Mahdavian et al.<sup>16</sup> reported beneficial aspects of this plant during the postpartum period.

Although initial studies have found Anethum Graveolens to be effective treatment for duration of labor, yet more research is needed to provide evidence that prove Anethum Graveolens to be an effective and safe therapy for labor management. Considering the fact that traditional use of Anethum Graveolens seeds in the beginning of labor and belief about its effect on its feasibility, the present study aimed at testing the effects of boiled Anethum Graveolens seeds on pain intensity and duration of labor stages.

## Methods

A randomized clinical trial used to verify the effect of boiled Anethum Graveolens seeds on pain intensity and duration of labor stages at Imam Sajjad Hospital, Yasuj, Iran.

The sample size was determined based on findings of Ebrahimzadehzagami et al. study<sup>15</sup> using following formula:

$$\eta = \frac{(Z_{1-\alpha/2} + Z_{1-\beta})^2 (S_1^2 + S_2^2)}{d^2}$$

With  $\alpha=0.05$ ,  $1-\beta$  (Power)=0.80,  $S_1=2.6$  (variance of duration of first stage of labor in the intervention group),  $S_2=3.4$  (variance of duration of first stage of labor in the control group),  $d=2.89$  (difference duration of first stage of labor between groups). The calculated sample size was at least 50 per group. Fig. 1 illustrates the process of participant allocation to intervention and control groups. A

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